Office Management and AMERICAN BUSINESS

The Magazine of Administration and ... *August 1960*

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Sweeping changes in office personnel picture foreseen
How one medium-sized company measures clerical productivity
Suburb vs. city: two "Office of the Year" winners revisited

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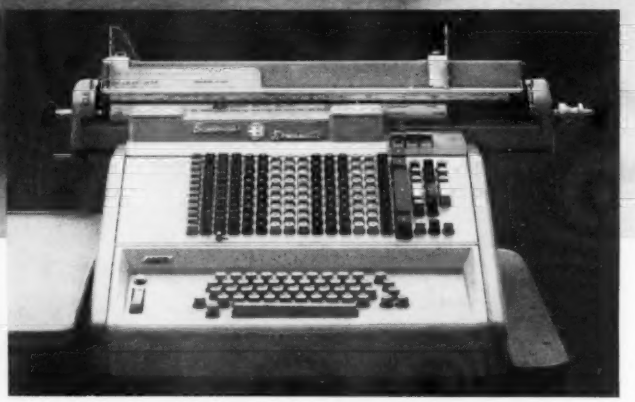

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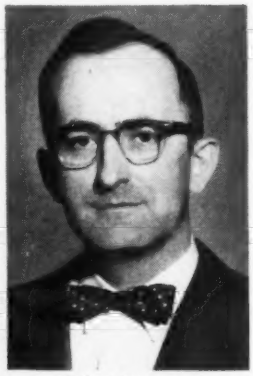

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Important changes—changes which could affect our entire economy—may come about in our approach to recruitment and training of office personnel in the years just ahead. The reason: the impact of new automation techniques on the character and methods of the office. See story, page 11.

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National ACM Conference. Milwaukee, Wis., Aug. 23-25.
Sponsor: Association of Computing Manufacturers.
Place: Marquette University.

Sixth Annual NAFM Supply, Equipment, and Fabric Fair. Chicago, Aug. 27-30.
Sponsor: National Association of Furniture Manufacturers.
Place: Conrad Hilton Hotel.

AMA Seminar on Data Processing Evaluation. Hamilton, N. Y., Aug. 29-31.
Sponsor: American Management Association.
Place: Colgate University.

National Business Forms Conference. St. Louis, Sept. 14-17.
Sponsor: National Business Forms Associates.
Place: Chase Park Plaza Hotel.

Twentieth Joint Annual Meeting of ASWA and AWSCPA. Philadelphia, Sept. 22-24.
Sponsors: American Society of Women Accountants and American Woman's Society of Certified Public Accountants.
Place: Hotel Warwick.

AICPA Annual Meeting. Philadelphia, September 25-28.
Sponsor: American Institute of Certified Public Accountants.
Place: Bellevue-Stratford and Sheraton Hotels.

LOMA Annual Conference, Toronto, September 26-28.
Sponsor: Life Office Management Association.
Place: Royal York Hotel.

ISA 15th Annual Meeting. New York, September 26-30.
Sponsor: Instrument Society of America.
Place: New York Coliseum.

Execurama Business Exposition. Los Angeles, Sept. 27-29.
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LET'S MAKE JOB TITLES MEANINGFUL

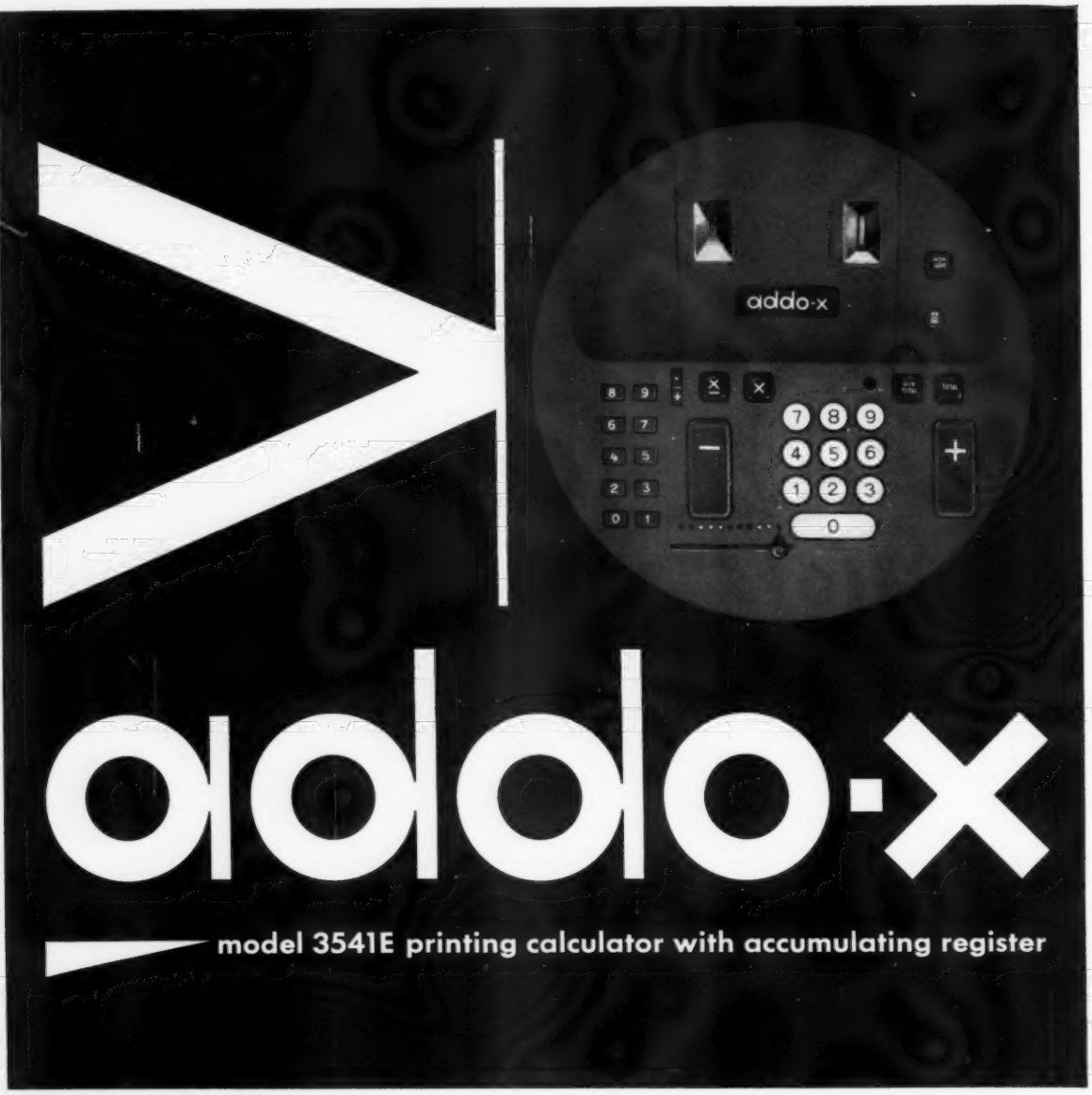
A recent issue of *The Management Review,* which took a gentle poke at the euphemisms so popular in referral letters ("He's a consistently good team worker" translates, "He hasn't had an idea of his own for twenty years," etc.) reminds us of another exercise in semantics which may soothe a few egos, but doesn't contribute much to business progress. That's the current habit of disguising a perfectly ordinary job with a title so pretentious that it is, in effect, misleading.

Thus, we have all kinds of words compounded with "engineer" to create new and presumably more professional job titles. We have janitors becoming custodians. Stenographers become executive assistants. And anyone who has more than three people reporting to him *is* almost sure to be a coordinator.

Harmless? Perhaps. Certainly, as we said before, it may be balm to the ego, but is it really harmless in terms of the company? Titles can influence the company which grants them; the more pretentious the title, the more weight it's apt to assume in the mind of possessor, and, unfortunately, in the minds of his colleagues. Make a man a coordinator, and you're all too apt to find that he's going to coordinate activities that never required it before. It's like creating a committee to get a simple job done. Several people are diverted from their respective jobs to spend time working on a project which is itself delayed because a committee rather than a single person is responsible. Reports are prepared. Abstracts of the reports go to top management. And the chances are that the job will drag on so long that the company will find it has a new standing committee on its hands.

The same rule holds true in individual situations. Today's stenographer, perfectly happy and not feeling the least overworked, is apt to find she must have immediate help when she becomes tomorrow's executive assistant. The man who can work his way to a sign on the desk has taken the first step toward a name on the door—perhaps in the very same job.

It might be simpler—and cheaper—to give deserving workers a raise—and let the title go.



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SWEEPING PERSONNEL CHANGES FORESEEN AS RESULT OF NEW AUTOMATION DEVELOPMENTS

Shifts in job requirements and demands may cause serious displacement in years ahead

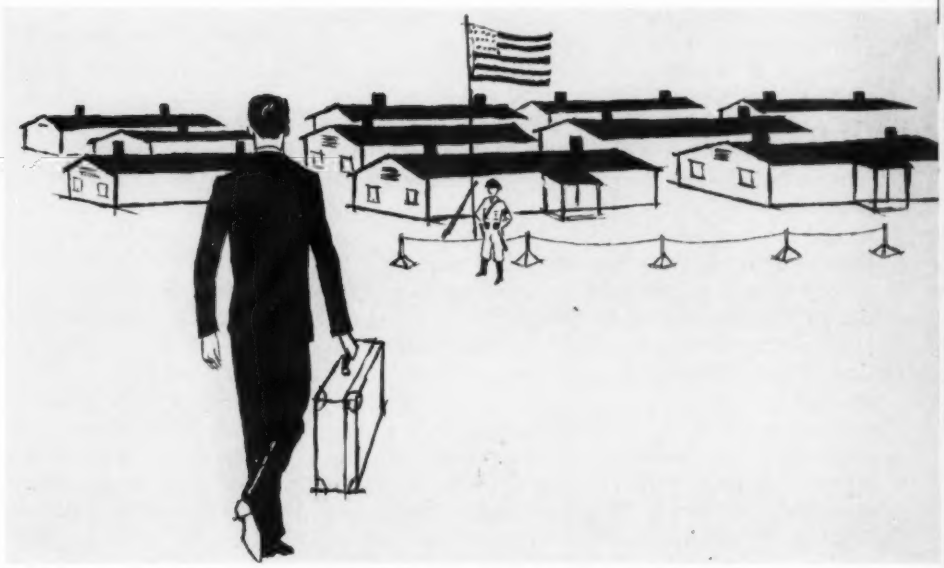
By ROBERT M. SMITH

WE'RE entering a period of "quantitative overage of office workers, and qualitative shortage."

There'll be more people on the labor market than we can use – but there won't be enough of the type of people we need.

That's the grim prediction of many experts concerned with the effects of automation on office procedures.

The old easy concept that automation would create more jobs than it would eliminate is coming in for a long, hard second look from many quarters today. It may eventually create more jobs, but they won't necessarily be of the same type – or even in the same companies – as they are today. And, personnel planning directors for many leading companies believe, it will be impossible to absorb many of the people coming on the labor market in office jobs because the jobs themselves will be too demanding for the workers' skills.



Growing world tensions, increasing technical demands of military, will tend to draw more young men into defense activities for substantial number of years.

Nurseries may be company-sponsored, or subsidized, to insure that women who have married and had children, can be brought back into the labor force within short period of time.

In the future, the "average" worker will be just barely acceptable.

That's why many large companies are looking uneasily toward new ways of recruiting — and holding — the most effective and intelligent workers they can get. The feeling is that a high degree of intelligence, initiative, and competence is going to be the criterion most important in selecting office workers in the future, because the jobs left in human hands in tomorrow's office will demand those qualities rather than the routine accuracy and docility which have been perfectly acceptable — sometimes even desirable — qualities for office workers of the past and present.

Assume an intelligence curve for the population as a whole on which the highest point represents "average" intelligence. In the past, people on each side of this norm have been perfectly acceptable for office jobs, with the below average filling in the more menial positions. But if we are entering a situation where the menial routines, and many of the fairly high-level routines as well, are being carried out by machines, the average intelligence becomes just barely acceptable for the office work that must be done by humans, and the below average becomes useless. This creates our situation of quantitative overage of workers, qualitative shortage.

This is a radical view, perhaps; it certainly is a long-range one. But it's taken seriously enough to cause many of the great "clerical factories" — the insurance companies, the banks, the various other institutions whose main work line is a clerical one, to begin searching for solutions to be applied as more and more traditional procedures are either eliminated or revised under the impact of automation.

Complicating the problem is the fact that the world situation promises to draw more and more of our brightest young people into governmental and military service rather than private enterprise. The rapid deterioration of the international situation has put new emphasis on defense projects: It seems quite certain that, whichever candidate is elected in November, the temper of the country, and the exposure of past mistakes that will inevitably accompany the political campaign, will force an acceleration of all existing military projects, and generous budgets for new ones.

Defense demands will complicate situation

And, as military training becomes more technical, and as research on military projects expands, an increasing proportion of our most intelligent young people will be drawn into defense activities, not for a period of fourteen or fifteen or sixteen months, but for a period of years.

All of which will cut down still further the supply of first-class workers available to business and industry.

Assuming these hypotheses are correct, what adjustments will companies have to make to compete successfully for the best potential workers in the first place, train them to meet the company's needs, and, last of all, retain them against the attractive possibilities of a tight labor market, and, in the case of women employees, the demands of marriage and homemaking?

Some of the possibilities that are being discussed:

Establishment of definite, wide-scale training courses almost in the nature of adult education, either within the company, or under multi-company sponsorship, for employees. Such courses would not emphasize company policies or problems, but would attempt to remedy some of the lacks of an overloaded educational system in which standards have deteriorated.

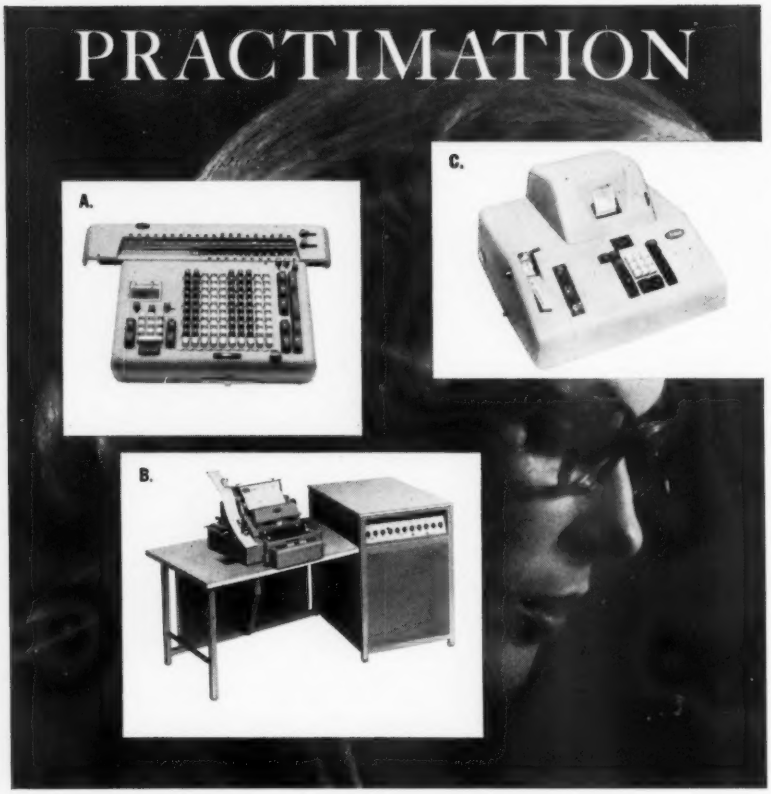
Increased use of both electronic and non-electronic business "games" as training devices to expose supervisory and higher level employees to decision-making situations on an accelerated time schedule. This is felt to be particularly important since many of the traditional day-to-day decision-making situations, which contribute so much to the education of executives, are disappearing as computers take on more and more functions within the company.

Breaching of the invisible barriers that have so often prevented women from being considered for promotion to executive ranks, and equal opportunity for qualified women to participate in all training situations and management development courses. This equality may be "born of desperation, rather than inclination," in the words of the personnel director of one of the country's major insurance companies, but it will be equality of opportunity, nevertheless.

Possible company, or multi-company, sponsorship of nurseries, to insure that highly competent married women who have children will not necessarily be lost to the company personnel strength for an eight- or ten- or twelve-year period.

In the broad economic picture, what is to happen to the great mass of people coming on the labor market who are not qualified to staff the professional and technical positions that will be dominant in tomorrow's office? (*To Page* 14)

Offices of tomorrow will have two main groups: technicians and executives.



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"Services" expansion

There will be temporary unemployment – serious unemployment – many personnel experts believe, but eventually the slack will be taken up by a vast expansion of the service industries. It will have to be.

Moreover, the service industries, notoriously understaffed in recent times, could absorb a much larger labor force than they have so far been able to get. Every nursery established will require new workers; every wife who goes back to the job after having her baby instead of becoming a full-time housewife will expand the need for laundry services, restaurant or prepared food services, transportation services. As more people, unable to locate jobs in highly automated factories or offices, move into the service industries, appliance repairs, housekeeping services, painting and plastering – all should once again become easily available.

The fact that automation, which already has sharply reduced personnel levels in some industries may, in spite of optimistic prophecies to the contrary, be having the same effect on offices, is documented by a two-year study by Ida Russakoff Hoos of 19 offices in the San Francisco Bay area, which had introduced electronic data processing during the period 1957-59.

Reporting in the July-August issue of the *Harvard Business Review*, the author, who carried through the study for her Ph. D. at the University of California found:

There was a net loss of clerical openings as a result of the effect of automation. For every five jobs eliminated, only one was created. The effects of this were masked to a degree by general company expansion, and the fact that the recentralization of office functions in San Francisco tended to keep job levels there fairly high while eliminating clerical functions at outlying branches. Moreover, the current company tendency to "find" work for displaced employees also obscured the figures. But in terms of actual jobs eliminated for good, Miss Hoos estimates the five jobs wiped out for each one created is a fair figure.

There are signs that such figures as these may be only the beginning of a widespread economic readjustment in our offices. Off the record, leading research chiefs of major electronics companies will admit that the net effect of electronic data processing will be a sharp reduction in the number of lower- and middle-level clerical jobs available.

That would be the effect under any economic circumstances, they point out. There is one other factor at this particular moment of time which accelerates this effect.

Considering the introduction of electronic machines as the symbol of a second industrial revolution, there is one all-important distinction between this "revolution" and its predecessor. The machines of the original industrial revolution were called for by the economic needs of the times — the climate was appropriate for the introduction of machines. But there were no enormous subsidies for the constant development of new machines — only the chance for men who cared to try to develop new and better ways of doing things to find a waiting market.

Research changes picture

Today, the situation is entirely different because the time schedule on which new machines are developed is so entirely different. In the first place, each major electronics producer is plowing a good deal of its own money into research in order to capture and hold a pre-eminent position in a market which will undoubtedly see some concerns going under in the next ten or fifteen years. Even more important than this, however, is the fact that the government, in its technological race with the Soviets, is making it possible for electronics manufacturers to carry far heavier research sections than they could ever afford themselves. In effect, military and national needs, rather than economic opportunities, are dictating the rate at which new developments can be offered. Thus, the electronic machines coming on the market now are far in advance of those that would have been available were it not for the accelerated

(*To Page* 18)

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Being a janitor has never been a rest cure: it certainly wasn't in the San Francisco of 1910. But even after the idea came to him, and he gave up first-hand manipulation of his broom, Mr. Rosenberg continued to work murderously long and hard hours.

And what was his idea? Like most good ones, it was extremely simple: contract janitorial service. Instead of hiring employees to come in and sweep out, Mr. Rosenberg persuaded businessmen to hire his firm to keep their premises clean.

He started in a small way, naturally. Then, as business warranted, he added more help, more equipment. At first the jobs were personally supervised by Mr. Rosenberg, later by his foreman. Every job got the benefit of a specialist's skill and experience. And a specialist's pride in his work.

Because he bought supplies on a large scale, Mr. Rosenberg could do the job cheaper than his clients could do it for themselves. Because he hired on a large scale, he could afford to train his employees to do the work better. The same is still true.

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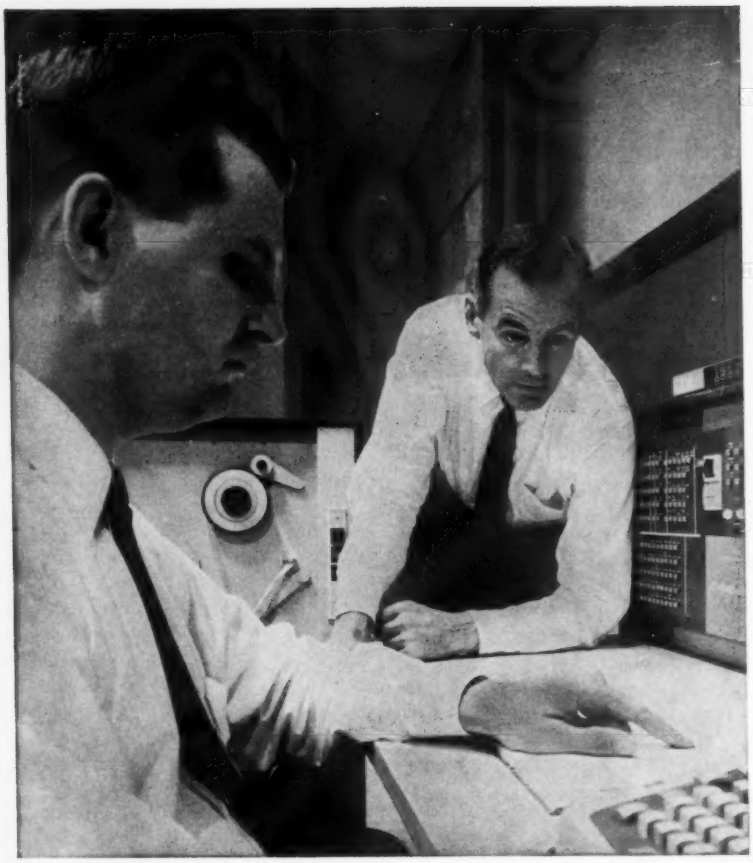

AUTOMATION IN THE OFFICE

OFFICE MANAGEMENT and AMERICAN BUSINESS has been the pioneer publication in the field of "Automation in the Office" since its earliest discussion stages. O.M. and A.B. maintains its authority with a continuing every-issue coverage of the news, trends and analysis of this modern technique!

Look to these pages for latest developments and case histories that point the way to effective application of automation in your over-all office operations.

Here are some typical features on automation in recent issues.

Lilliputian "Detroit" at IBM; Collins tests data communication ..... April

Moderate size Honeywell 400 shown; NCR readies EDP centers..... May

New "point-of-sale" punched tape records allow clerks to give customers better personal service ..... June

Magnetic ink character reading devices, optical scanners promise revolution in input problems and time lag.....July

Office Management
and AMERICAN BUSINESS
The Magazine of Administration and Systems
A GEYER-McALLISTER PUBLICATION
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Units outpace economy .

pressure forced by the international political situation.

In other words, technological developments may be coming faster than the civilian economy can accept them.

This possibility has at least one of the major electronics producers of the country concerned enough so that it is adding economists and social scientists to its research staff to determine how the economy can be adapted to cushion the effect of the machines, both on the production line and in the factory. There is a good possibility that some units are being deliberately withheld from the market because they could cause too severe and too sudden a job dislocation.

But in the sharp competitive situation which the major computer manufacturers face, the temptation to throw new developments on the market is fairly overwhelming. And so the problems pointed out by Miss Hoos in her study are apt to become more severe.

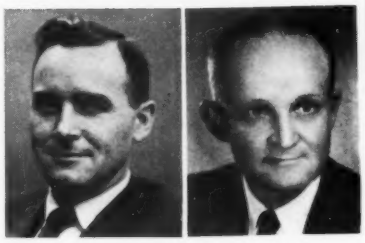
She found, too, that the often stated argument that automation would not eliminate jobs, but merely free human beings for more interesting work was a fallacious one. According to her study, the workers retained found in the great majority of cases that the work they were doing was far more routine than had been the case before automation.

This would seem to be a temporary phenomenen, however — for the reason that the workers retained may find that the days of their new jobs, too, are numbered.

In the past, as electronic data processing installations have been made, the well planned ones have eliminated many internal jobs in the company's processing lines. However, almost all of them, unless tied into a company-wide automatic communications network, still required human operators to translate incoming raw information into media acceptable for computer input. But it is in exactly this area that the most startling electronic developments have occurred this year, as was reported in this magazine last month. ("Input improvements major '60 advance.")

(To be concluded)

PROMOTED



Smith Smythe

Smith, Smythe appointed to new magazine posts

Robert M. Smith, editor of *Office Management and American Business*, and editorial director of all Geyer-McAllister publications, has been named a vice president of the New York publishing firm, and John M. Smythe, vice president and former Midwestern manager of the business paper group, has been appointed senior vice president and advertising director of the concern.

Mr. Smythe, who has been transferred to the New York office, replaces Hugh J. Ward, former senior vice president, who retired July 1.

James J. Neary, Jr., advertising and business manager of *Office Management and American Business*, has been promoted to the newly created post of publication manager for the magazine. Mr. Neary, who is also a vice president of the parent corporation, will continue to serve as advertising manager of this publication.

Arthur Hutchison, who has been associated with Geyer-McAllister's Chicago office for the past five years, replaces Mr. Smythe as Midwestern manager for the magazine group.

Robert J. Smythe, son of the new senior vice president, has joined the staff of the Chicago office as a sales representative.

The "Office Design" sections of the next two issues of Office Management and American Business will feature new models and new principles in office furniture. General office furniture will be covered in September; executive furniture in October.

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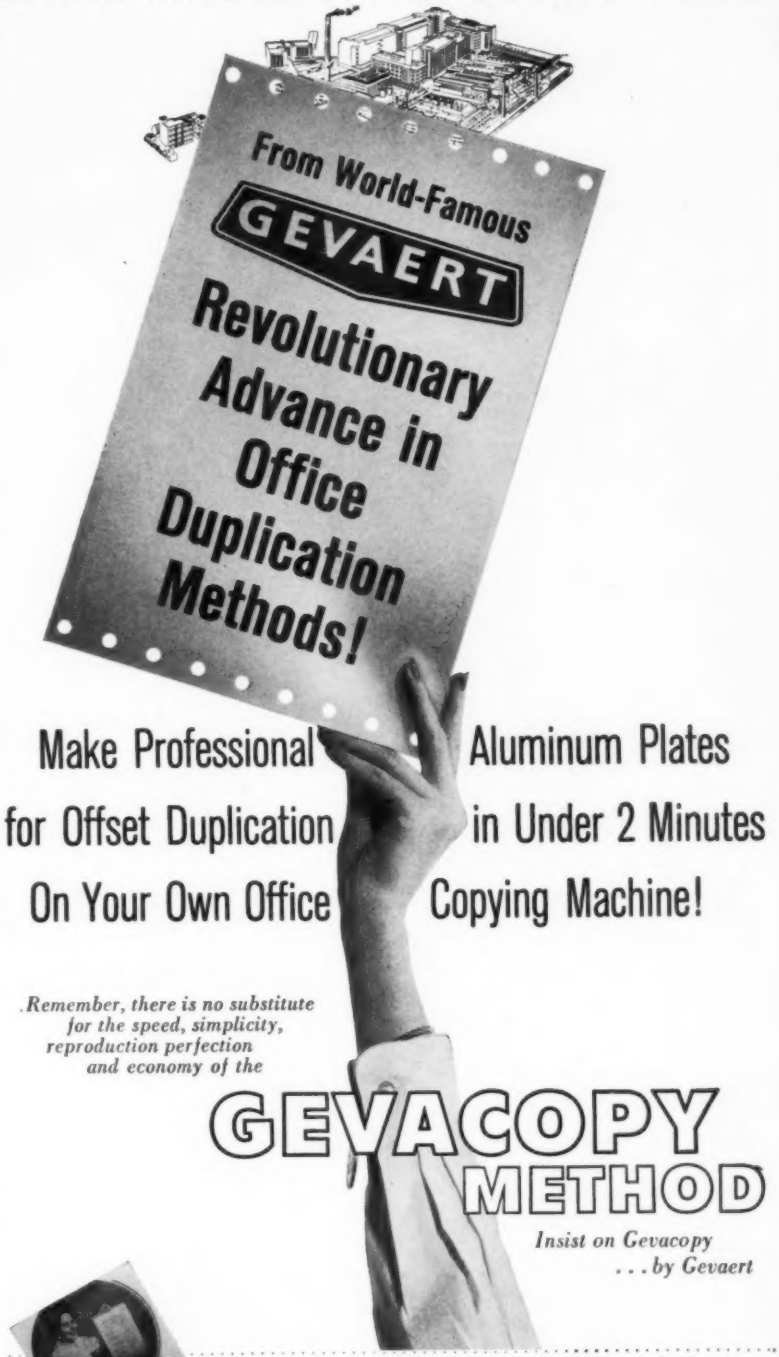

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NAME ..... TITLE .....

Although office work measurement methods lag behind those of the factory, new standards are being developed for

MEASURING OFFICE PRODUCTIVITY

Mounting overtime is an obvious handicap to the office that lacks standards.

By IRWIN LIPTON
Assistant to Production Control Manager
Maiden Form Brassiere Co.

A QUESTION that management should ask itself in this new period of increasing operational costs is, "Can standards applied to office work limit spiraling administrative expenses?"

The answer given emotionally, based upon old cliches, or without a detailed analysis is "No." However, use of the same dispassionate thought given to production problems, organizational problems, expansion problems, or design problems would give the answer "Yes."

When we wish to measure the dimensions of a room, we look for a standard and commonly, therefore, use a ruler. When we want to measure the productive effectiveness of an individual, what ruler do we use? In factory work our available yardstick has been, for half a century since Taylor and the Gilbreths, the production standard arrived at through stop watch or M. T. M. (methods-time measurement). In office work our yardstick has been, at its best, what another individual has done or is doing on a similar job; at its worst, a "feeling" on the part of the supervisor that the company is getting an honest day's work. At its worst or best, these abstractions are inadequate to measure output when compared to time study used for much of the individual factory output.

What we refer to as a production standard and what we are looking for as a measure in office work is a figure of expected productivity of an average individual. When we have determined this standard we have found the office work yardstick. No longer do we have to rely on abstract reactions, such as those made by supervisors, or comparisons of inefficient incumbents with new

replacements. The next logical step is to compare group effectiveness, departmental effectiveness, and supervisory effectiveness by applying the same technique.

With full knowledge of the basic principles of time and motion study and M.T.M. it may seem that in two of its principles—standard conditions and repetitive elements — major reluctance to application of standard lies.

Admittedly, not too many *complete* office jobs meet these requirements, but just think of the large percentage of jobs that contain tasks in which a majority of time is made up of a number of repetitive elements under standard conditions *e.g.* — filing, posting data, typing standard entries on invoices or statements, calculating, transcribing data, summarizing data, key punching data, checking data, copying data, and many more. For each of these functions the average entry takes a certain amount of time. (For instance, about seven strokes on a Comptometer require five seconds, and it takes about 30 seconds to convert four or five positive values to percentages of a total and transcribe them.) Despite varying numbers of entries, papers to be filed, postings to be made, etc., it is a simple matter to multiply the number of operations by the average time spent on each to arrive at an approximate standard for any of these particular tasks.

First step: examine job

To develop your own particular list of unit times, begin by examining the parts of the job in which you know either from your own performance or from records that there is a generally recurring set of basic operations. Check these tasks out by M.T.M. or answer these two questions: How fast can you do them, and how fast has someone else done them? Is this time faster or slower than the average so that it must be adjusted up or down? (See any library reference on leveling or rating in time and motion study.) This can be done until you develop and verify a whole background of standard times for tasks which would be applicable any time they recur in a similar job.

To clarify a bit further with a practical example, Maiden Form has

Yet, equally harmful—in terms of morale—is boredom of clerical workers.

many of its operations on piece-work payments based upon standards. This in itself is not strange, but it is unusual that one of these operations is picking orders in the stockroom, which has been successfully on this pay method for many years. Each order covers a combination of up to 300 styles, colors, and sizes of garments located over a wide area of shelves. Few office jobs have more variable combinations, yet Maiden Form does not use standards as a basis of payment in office jobs, but as a basis of approximate time.

One more example from Maiden Form may serve to illustrate this point. Several years ago I had occasion to test some of the theories of office work measurement. There was a simple transcription job consisting of 150 entries which were made every two weeks. I felt that this task was a good starting point for my evaluation. I did the job myself and found that it took about 25 minutes (about six entries per minute, although five entries per minute is a good standard for transcription entries of most types.) Among the supervisors there ensued a discussion of how long one of the clerks would take to do the same job, and finally a friendly lunch wager was made. A girl was selected who apparently had heard much of the banter. She proceeded to do the job in about 20 minutes, handed it back, and very proudly said, "Don't expect me to do it this quickly again."

How do management and the supervisor cope with this type of attitude prevalent throughout industry? The answer lies in believing that standards are the answer and then taking a positive approach toward their application.

Office work standards can be used for purposes other than the measurement of effectiveness. By knowing how much time is needed for various jobs, the supervisor can anticipate when workers will finish a task so that he can assign a new task in advance. As a result, the employee doesn't fear working himself out of a job. A typical case is the Comptometer operator who feels that she is being "picked upon" by the supervisor. Her reason for saying this is because every time another department needs help for an hour or two, she is the one the supervisor sends. In reality she is being "picked upon" for she has not yet developed the ability of looking busy when she is not and ends up having to move to the unfamiliar surroundings of other co-workers, supervisor, desk facilities, etc. Sooner or later, this girl learns to look busy by stretching out her tasks and soon, also, we need a fourth Comptometer operator with no increase in the office work load.

When a worker has a job ahead of him, however, he paces himself to complete his first task. This approach ultimately results in elimination of soldiering as the worker realizes that the supervisor has an interest in limiting the time for a

job. Another gain is the ability of the supervisor to pre-plan assignment of tasks as he knows how much time is needed for work on hand and how much time will be open. Also, everything does not become a rush because we can anticipate the priority of importance and use a sequential approach. It is also possible to check the claim of one employee being overworked while another relaxes, on the basis of these standard times. Incidentally, in this last case, what usually will happen is that one is found to be working harder than the other—one at sixty per cent effectiveness and the other at forty per cent.

From a management standpoint, the above gains result in minimizing overtime so that more work gets done during the regular work day. The number of employees needed to staff the administrative function is markedly reduced as output per employee increases. As the number of employees decreases, the number of supervisors also decreases because the span of administrative control remains the same. The number of employee replacements needed is reduced as 20 per cent of 200 is smaller than 20 per cent of 250. Along with all these gains must come savings which accrue from less need for office space, reduced training time put in by supervisors, and reduced capital tied up in equipment. All these items accrue to management geometrically, not arithmetically, when the program gains momentum through active support and policing by top management.

Fit worker to his task

Another benefit accrues to management from the program of developing these average times that enable us to approximate the completion point of a task. This is the fitting of the worker to the task. From this benefit we have corollary gains, such as developing and maintaining interest on the part of the employee, which take place because we can vary the tasks that are assigned to employees. Variety of assignments is among the greatest interest developers. Also, we can save a task to challenge an employee's abilities, we can have him perform the task he likes best, or we can utilize his special aptitudes and abilities. This last item, of course, has its own advantageous offshoots —improvement of the quality level of work output and relief of monotony.

It is wise to note that the supervisor is the key to success of the office work measurement program. Accordingly we must make him aware of its techniques. Along these lines he must have a knowledge of the application of average times in setting standards, rating or leveling, the concept of standard elements, the importance of rhythm as the keynote to effective job performance, optimum layout, and the application of general rules such as use of both hands and simultaneous and symmetrical movements.

The list can grow and grow, but awareness of the value of standards must also help. Therefore, let the supervisor know that the standard is his tool for running his department smoothly. That a worker never knows his own potential until it is put to test. That not until the supervisor indicates his own awareness of time to the employee does the employee realize that this factor exists in terms of his performance. That an additional measure for promotion and merit increases is present against which to evaluate the employee. That pre-loading the staff enables it to handle peak work loads and meet special deadlines. That the continued use of the techniques of establishing standards and applying them effectively demands the development of an analytical approach to sharpen our thinking.

The value of office work standards is best illustrated by the fact that the ratio of 11 clerical workers of every 100 workers 15 years ago has now climbed to more than 16 clerical workers in every 100 workers, and that this figure is constantly growing at the same rate that our office buildings are pushing skyward in an attempt to accommodate this tide.

Advantages of office work standards

I. Workers can pace themselves to complete tasks.

II. Supervisor can pre-plan distribution of work.

III. Overtime is minimized; work gets done during regular working day.

IV. As individual output increases, number of employees needed decreases.

V. Savings accrue from less need for office space, reduced capital tied up in equipment.

VI. Worker can be fitted to task and, as a result, quality level improves, monotony is relieved.

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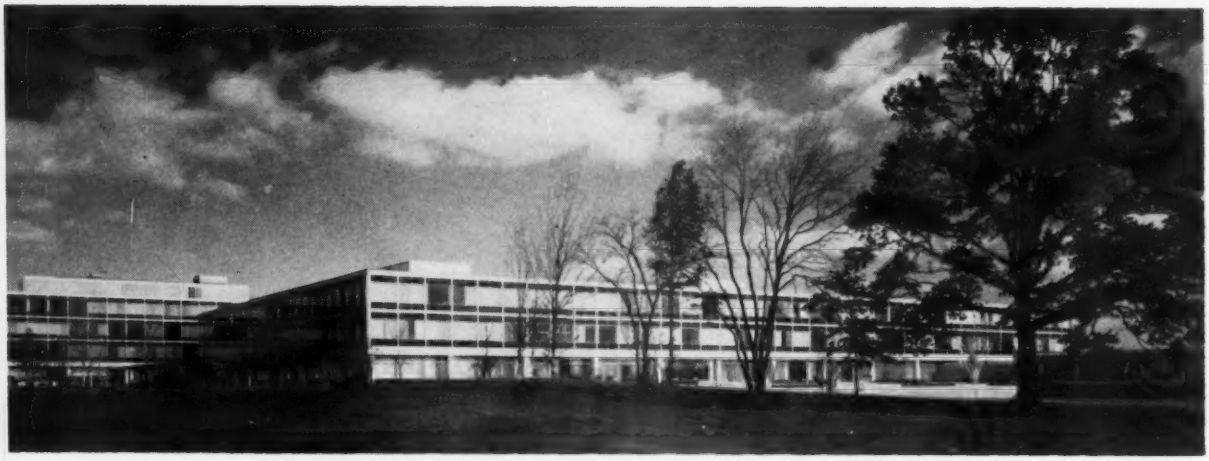

Connecticut General's low structure graces rolling hills near Hartford.

SUBURB VS. CITY

Return visits to two "Office of the Year" winners verify the practicality of respective structures

Malcolm F. Hood, director of planning, and Miss Mary A. Barney of the planning department, examine model of Connecticut General.

By CHARLES F. JOHNSON
Business editor
The Dartnell Corporation

TWO OF THE MOST significant new office buildings of 1957 embodied radically different, almost contradictory, concepts concerning site and design. One was built for a company that chose to move in from the rim of a city to its hub, the other for a company that decided to exchange a location in a city's center for a rural site on the outer fringes of the metropolis. Both were winners of this magazine's "Office of the Year" awards.

The contrast becomes even more pronounced when one considers that the two edifices have the same purpose. Both are the home offices of insurance companies, and thus to be efficient had to function as "clerical factories." Yet preferences and the realities of real estate dictated that this function be discharged by buildings of almost directly opposite form. On the downtown site Mutual Benefit Insurance Co. of Newark, N. J., erected a tall, slim building. In the countryside near Hartford, Conn., Connecticut General Life Insurance Company adapted a low structure to the gently rolling hills.

After three years of living in and with these buildings, how does each of the companies feel? What have been their happy surprises, problems, disappointments?

Not long ago these questions were put to Milford A. Vieser, executive vice president of Mutual Benefit, which had outgrown its Greek temple of a building in a decaying residential district of Newark. After some study it had selected a site in a decaying industrial area within Newark's central city.

"If the building were to be built again," Vieser declared emphatically, "I would do exactly the same thing. Same site, same contemporary design, same materials," continued the man now known as "Mister Building" among his Mutual Benefit colleagues because of his interest in the project, which he directed. "The only major change I would have made is to have the building just a little bit bigger—two or three floors higher. We had no idea how popular the building would be. There is a long list of companies wanting to lease space here."

The building is 20 stories high. Mutual Benefit occupies all of the first six floors and part of the sev-

Benefit's 20-story building towers above Newark, N. J.

Mutual Benefit's IBM 650 soon will be replaced by larger 7070.

enth. Tenants lease the rest of the available space through to the sixteenth floor. Mutual Benefit uses the rest.

High on the list of criteria for the "Office of the Year" award, which Mutual Benefit received in 1958, are utility and a beauty that reflects adherence to function. An examination three years later finds that the building has met the "handsome is as handsome does" test. Its maintenance costs have been below the expected figure. Best estimate for annual fuel costs to heat the building came to about $24,000. In actuality, the company spends no more than $16,000—only $1,000 a year more than it cost to heat the old building. Usually, it takes about a year before the air conditioning system is completely balanced and providing maximum comfort. Mutual Benefit's system worked perfectly from the first day.

"Our single problem is a minor one," Vieser continued, "and we seem to be on the verge of solving it. The marble flooring on the first floor is the same as that of the National Gallery of Art in Washington, D. C., which was designed by the same architects, Eggers & Higgins, who did our building. They suggested that I go out to the Gallery sometime when I was in Washington and take a look at the floor. This I did and came away quite pleased with the floor, which then was specified for our building.

"But that was before sharp, steel-tipped high heels became so stylish. We seem to be getting excessive wear around elevators and elsewhere on the first floor where people congregate or follow a definite path when they walk. Some companies have asked their girls not to wear such heels. I wouldn't like to do that. Our maintenance department apparently has found a wax compound that is not slippery but is hard enough to protect the marble from barbed heels. And perhaps the darned things will go out of fashion sometime," Vieser added hopefully.

The experience of Mutual Benefit demonstrates that elevators can be "programmed" to provide swift service and a minimum of waiting, despite the peak loading and alternating directions. A day spent in the building, going from bottom to top and from floor to floor, proved that the company is attaining its objective of having its automatic elevators so scheduled that nobody has to wait more than 20 seconds. Thus, Mutual Benefit avoided that bugaboo of some tall buildings—crowds of clerks slogged around elevator doors or crushed into their interiors, wasting time and often clutching papers needed on another floor.

"One of the most useful lessons we have learned from living with this building," Vieser volunteered, "is that we were very wise indeed to specify high-cost materials that would make for low-cost maintenance. Most of our walls, for example, were covered with textured fabrics, generally synthetic, instead of being painted. These resist stains and wear. When they become soiled, they can easily be washed clean. They have proved such a happy arrangement that as fast as is feasible we are covering most of our painted walls with the same fabrics."

Before the move to the new building in 1957, Vieser held a meeting of all employees and alerted them to conditions to be en-

Mutual Benefit's experience indicates value of tall building

countered in the new office. (His misgivings about poorly functioning air conditioning and elevators proved unnecessary.) He also informed supervisors that there would be a one-year moratorium on re-arranging office layouts and departmental moves. "When the year was up, there were surprisingly few requests for moves," he reports.

One reason is that Mutual Benefit's building department gave each departmental office manager a set of templates and layout paper and told him to arrange his desks, file cabinets, and other departmental equipment the way he wanted. "This approach has two advantages, Kenneth F. Van Houten, Mutual Benefit's building superintendent explains. "For one thing, it would take a lot of time and questioning for an outsider to gain the knowledge of work flow and other factors affecting layout that the departmental manager already has. After working up the layout and submitting it to us to make sure that it conforms to company standards and ties in properly with existing electrical power and telephone cables in the sub-floor, the manager feels that it is his layout. We generally have to make only minor changes, and the manager has things the way he wants them. We think that this approach produces the most efficient layout and that it probably explains why there have been so few requests to change layouts. In making such requests the departmental manager is reversing himself, not high-handed 'experts' in the building department."

Private executive office at Mutual Benefit.

The Mutual Benefit experience shows that it is just as simple to rearrange a well-designed, well-laid-out building as the supposedly more flexible long, low building. Departmental consolidation of space recently opened up a large area on the seventh floor. This was walled up and rented to a tenant for $60,000 a year, a welcome windfall. Flexibility permits expansion, too. When the building was first opened, Mutual Benefit had recently entered the group-insurance field. The department was small, requiring only 12 spaces. (In the company's definition, a "space" is 100 square feet and is enough to comfortably contain a desk, chair, wastepaper basket, and file cabinet.) This department's business has increased greatly and now requires 70 spaces, which it is in process of receiving.

Flexibility in the Electronic Business Machines Department will permit it to absorb easily an International Business Machines 7070 that will be installed this fall. Mutual Benefit's Electronic Committee, composed of 20 representatives of all departments affected by data processing, has been meeting full-time for several years, selecting equipment, and preparing procedures for integrating to EDP operations. When the new computer arrives, it will replace the present IBM 650. The departmental manager's office will be shifted, a transition made easy by movable partitions. A 9½-inch sub-floor under this department facilitates linking the computer with the printers and other equipment, as well as to power cables.

Intangible benefits accrued

In the realm of intangible, hence immeasureable, factors, the new building has been a great success. Department heads and others report that as soon as they moved in, girls began "dressing up" to their new and handsome surroundings. The clean and controlled air-conditioned environment made clothes stay crisp and fresh. Men noticed that suits needed less frequent pressing.

Employees identified themselves with their building and proudly showed it to the friends and relatives who stopped by to pick them up. At an open house, an activity that did not attract more than 30 per cent of employees in the old building, so many showed up with their families that the event had to be extended another day.

The central location near the center of Newark and its shops and other services has relieved the company of having to maintain tennis courts and other sources of diversion for the noon hour. The old building had an employees' library,

Connecticut General uses Royal McBee LGP-30 in reinsurance department.

a branch of the Newark Public Library. Mutual Benefit people who wished to read or browse now need only walk a hundred yards across attractive Washington Park to the central library itself. Others can go shopping or run errands in downtown Newark's large department stores or specialty shops. The company maintains its own cafeteria, however.

It is in community relations that the new building achieved its most palpable impact. The citizens of Newark had become increasingly concerned about the urban decay eroding their city's core. This anxiety was intensified by frequent rumors that the city's largest single employer, the Prudential Insurance Company, was contemplating moving its home offices to West Orange, N. J.

News of Mutual Benefit's decision to build on a downtown site was blazoned on the front page of Newark's metropolitan newspaper in even bigger headlines than had been used to announce V-J Day. While officials of the company carefully refrained from making any claim, the company was heralded by civic leaders as "the savior of Newark." Impetus was given to the program to redevelop central Newark. Prudential decided to stay put and started to build a huge office building, to be occupied later this year. Rutgers University started a law school building across Washington Square from Mutual Benefit. Soon afterward investors purchased a large area nearby, had buildings razed, and constructed three 22-floor luxury apartments, complete with swimming pools. The buildings were designed by Mies van der Rohe, who will also design a handsome shopping plaza on the large, redeveloped tract.

When they were in their old building, company executives frequently were pained when Newark taxi cab drivers would demand, "Where's that?" after being asked to drive to Mutual Benefit Life, part of the community for almost a century. Now they nod knowingly and proceed unerringly.

The new structure is a landmark, easily seen from almost any place in the city and by the hundreds of thousands who pass through Newark by rail or car. A source of pride

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Connecticut General champions low building

This view of private offices at Connecticut General shows specially designed system of movable partitions that provides for flexibility in arrangement of work space.

and profit to both company and community, the new building is a mutual benefit, indeed.

Meanwhile, what has been the experience of Connecticut General, the insurance company that in 1957 moved from downtown Hartford to a site in sylvan Bloomfield 12 miles away?

This company, too, is happy. Hoped-for benefits have materialized, and some unexpected ones have presented themselves.

One of the big tests was passed late in February 1958, about ten months after the move. Connecticut and the rest of the East had been visited by a weekend snowstorm that surpassed anything in recent decades. Frazar B. Wilde, Connecticut General's energetic president, recalls he was fighting his way around Washington on Monday morning and that the complete closing of all government offices was announced because it was felt that the employees could not reach the downtown area.

"Our personnel department," Wilde recounts, "was able to report that by nine o'clock on Monday morning 90 per cent of our employees had reported for work. Our parking spilled over a little on to the access roads, but everybody had found a place for his car. The trip was a little longer for many of our people than it was downtown. But the peripheral roads were open after that storm and traffic was moving, while there was almost complete congestion downtown. Our parking space, which is large and fully under our own control, was ready for use. And the view of the Connecticut hills, covered with snow as though posing for a Christmas card, was there for us to enjoy."

In the late 1940's when the company first began to attack its expansion problem it did not have any special interest in moving to the country. But as site-location criteria were established, the direction arrow pointed more and more toward the countryside.

What were these considerations? Some related to the nature of the insurance business while others were external and were the product of trends in contemporary business, social, and personal life.

Wilde, who presided over the entire sequence of steps from site selection to design and construction, has defined the considerations. "The business processes in our offices bear a great deal of resemblance to light manufacturing. Our employees, usually making use of machines ranging from typewriters to complex tabulating and printing devices, assemble pieces of paper. The work passes along from unit to unit. It is processed by groups of people, with the majority of them young women who work with their minds as well as with their hands to carry out our operations. Many of the same considerations that brought about the passing of the old multi-story New England factory and its replacement by spread-out buildings on just one or two levels also apply to an insurance company. Work just doesn't like to go upstairs."

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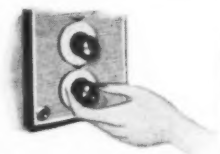

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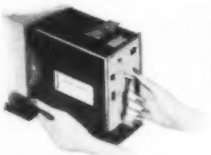

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Rural site fits needs

zation and automation of office work and continued rapid growth of Connecticut General constituted an important element in the design of the contemplated building.

These requirements added up to a strong argument for a building constructed principally on horizontal planes so that it provided large, unencumbered, and uncompartmented space flexible enough to accommodate the changing needs of various departments and to house the office machines of the future.

It is difficult to find sites in the central city of any large American metropolis expansive enough to permit the construction of horizontally arranged buildings of the size needed by Connecticut General. Such a search would be especially hard in Hartford, a town that is more than 300 years old and whose business district is confined to land on but one side of the Connecticut River, the west.

All the considerations of design seem to cry out for a suburban site. They were reinforced and amplified by the important developments wrought in contemporary social and personal life by the automobile. One of these is the increasing congestions of downtown streets and parking lots, even on snowless days. But the most powerful and pervasive of all is the fact that most people prefer to drive to work.

So Connecticut General sought and found a site that was accessible by road and commodious enough to provide plenty of parking for employees and to permit the erection of a long, low building.

Amid the warnings of other companies that important numbers of employees would quit, Connecticut General took occupancy of its new building in April 1957. Despite the tight labor market that existed before and during the first few months after the move, the dislocation caused no great loss of employees. In fact, Henry Dawes, director of personnel, was understandably delighted that preventable termination actually has declined since the company left the old building. (Preventable termination involves those elements over which the company has some control. It does not

include the women who quit because they are getting married or having a baby.)

"We feared that we might lose 10 or even 15 per cent of our employees because of the move," Dawes said. "Our fears failed to materialize. Perhaps an even more startling development is the increased quantity and superior quality of job applicants. The average IQ score on these applicants' tests, for example, has increased 25 per cent. Our interviewers tell me that they are seeing a better type of person. If we can improve the caliber of our employees 10 per cent, this alone will pay for the building's extras."

More work, fewer workers

Connecticut General has measured clerical productivity wherever possible and has learned that the superior employee is twice or even three times as productive as the average worker. This is true in the transcribing department, key punch, and even in fairly complicated mathematical computations. Their work contains fewer errors, too. Accordingly, Dawes is highly gratified that the building has attracted more job seekers and more gifted job seekers. "This building does not represent a soft attitude toward employees. It is a cool objective commitment to efficiency. We don't want our employees to work any harder. We want them to work better."

This they have done. Insurance companies lack an end product that can be used to measure productivity. Premium income provides one rough index. In the years since the move Connecticut General's premium income has grown about 10 per cent. The number of employees in the home office has *declined* 6 per cent. "The smaller work force is not only putting out more work but doing it with less overtime," Mr. Dawes reports. "In our old building our overtime rate was 6 per cent. In 1958, the first full year we spent in this building, it was 3 per cent. The rate remained exactly the same in 1959."

To make up for the diminished availability of public transportation, Connecticut General has chartered buses that each morning "come across Hartford like a rake,"

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in Dawes's descriptive metaphor. Originally, there were 11 of these buses. Now there are only eight. The company spends about $3,000 a month on this subsidized transportation. Dawes's staff also provides a clearinghouse service that brings together drivers who want riders with riders who want drivers.

Because isolation tends to produce insularity, Connecticut General has provided recreation, education, and shopping services. Its employees maintain a high level of participation in the affairs of their own communities.

"Another result we had not expected at all," Wilde notes, "was the great increase in internal personnel contact brought about by the horizontal plan. In a more conventional office building you shuttle by elevator to your own work floor and then back to the street at the end of the work period. In our building, as people move from the door to their desks, and then at noon to the cafeteria and back, there are many more opportunities for casual meetings. People are getting to know each other across the lines of rank or department."

Flexibility for expansion

How has the building accommodated to the changing needs of departments and the acquisition of new business machines?

Malcolm F. Hood, the company's director of planning, has answers to those questions. "In terms of building use and layout—the areas of responsibility – the building has worked out better than we dared hope," he said. "Expansion and contraction of office areas are not confined by artificial barriers of plaster and masonry and the dust and disturbance raised by changes in such construction. Because there is nothing static, the layout department can strive for absolutely ideal layout possibilities," Hood emphasized.

Studies by Hood's staff have revealed that movement of paper is flowing evenly throughout the "clerical factory," as some have called the structure. Horizontal distribution of paper is accomplished by mail clerks riding battery-operated carts which move quietly on rubber tires over the four-acre floors. Vertical distribution is handled by an electro-mechanical conveyor system that is being copied in many other new buildings.

Hood has observed an interesting phenomenon. "In our old building, where workers' desks were crowded together, more or less cheek by jowl, people were always getting up from the desks and moving around. Now there seems to be much less restlessness. When you see people away from their desks, their mission seems to have purpose – they may be carrying a file folder or something else useful."

Hood's observations are corroborated by psychologists, who have found that confined surroundings inhibit concentration and encourage people to get up and literally walk away from problems.

To aid in the arranging of new layouts, Hood and his staff have models of both floors of the main office building. These are done completely to scale and have desks, partitions and other pieces of office equipment that can be shifted around this way and that. Extensive use is made of photographs of these models.

Because the building was planned with an eye to large-scale use of data processing, there will be no trouble providing the services required for a large EDP installation, especially the power supply and adjacent filing space. An RCA 501 computer has recently been ordered and will be received with no difficulty.

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Perhaps the ultimate proof of the building's adaptibility and all-around usefulness is the fact that Connecticut General's forecast of its growth caused it to plan to construct an addition in 1964. Although business has increased at the projected rate, the increased work-load is being absorbed in such a manner that Connecticut General planners now think that the new addition can be postponed until 1966 or 1967.

Not so the parking lot. When the company planned its new home office it wanted to have plenty of parking for employees and anticipated that one space for every two employees would be sufficient. It celebrated its first anniversary in the new building by constructing a large new parking lot. The ratio of one for two was not enough. It should be much closer to one space apiece.

Buildings do not compete

Mutual Benefit went to town. Connecticut General left for the country. Both companies are sincerely pleased with the paths they took.

The Connecticut edifice is much more celebrated and has become recognized all over the world as the full flowering of the international "box" school of architecture founded by Mies van der Rohe. But it is an expensive flower. The company has never revealed the cost of site and construction, but rumors suggest that total costs may have amounted to more than twice the original estimates. And there were many man-hours of top-executive time devoted to planning the structure and overseeing the construction. Wilde himself lavished tremendous personal attention on the project, like a Medici supervising the building of a Florentine counting house. Of course, these stately houses of Florence were copied for five centuries by bankers and other people who wanted buildings that embodied beauty and gave a strong sense of financial security. Indeed, the home office that Connecticut General built in the 1920's was patterned after a Florentine palace, with rough-quarried stone and curving bars protecting its first-floor windows.

The Newark building is a more conventional and less lavish structure. In deciding to remain in that city and erect a handsome edifice in what was a decaying section of the central city, Mutual Benefit made an important contribution to the city's future.

By providing rentable space, Mutual Benefit set itself up to receive rather substantial income until it expands into the complete building. Its employees can use existing public transportation so there is no need to provide subsidized bus service. Indeed, employees who use the parking lot must pay a monthly rental fee. The stores of downtown Newark being close at hand, the company has no need to operate shops of its own. Nor is there any danger that workers will come to feel that they are isolated on an island, far from the crowd, madding or otherwise.

Perhaps the best explanation of why both insurance companies are so happy with their dissimilar home offices is that both were carefully planned to meet individual objectives. The two companies compete against each other. Their two buildings do not.

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Conclusion

LET'S TAKE A SIMPLE APPROACH TO SYSTEMS

Preliminary study provides basis for eliminating superfluous paperwork

By ROBERT SHIFF and ALAN NEGUS
Naremco Services, New York

THE BEST WAY to begin an overall systems revision is to make a preliminary study of all departments —much in the fashion of an internal audit—to see where inefficient and unnecessarily expensive procedures can be eliminated.

After the survey of all major departments has been concluded, the analyst will find that he has a general picture of how the entire company operates and how the work of one department fits into that of another. He will also find that he is probably the only one in the company who has the latest bird's eye view of operations. He will find, too, that he has a pretty accurate idea of where the most likely trouble areas in the company are to be found. It is still only an idea: his investigation to date has only bred ideas. But, like a detective, he has assembled clues and has identified his most likely suspects. Now, an intensive investigation of the most suspicious areas can begin.

This intensive investigation of the departments that have flagged the

Files bulging with needless papers are but one symptom of inefficient systems and procedures.

analyst's attention on his "walk through" of the company, begins at the "suspected department" line, where he subjects to scrutiny every paper coming into the department, every operation performed there, and everything that is produced there. Each form, each report, each major job is reviewed in detail.

Is the department receiving only the information it needs to do its work, or is it clogged at the input end with superfluous data, from which it must extract the information it needs?

Is work flowing through the department in the simplest possible way, or is it making unnecessary revolutions within the departmental boundaries?

Is the department generating *what seem to be* unnecessary forms and reports?

If so, why?

Who has requested or authorized them?

Who uses them?

What does he "do" with the information contained in the form and reports he uses?

Is the work load in proportion to the number of workers employed?

The goal at this stage should, of course, be to eliminate every unnecessary step and every unnecessary paper, form, and report coming into the department, generated in the department, and leaving the department.

And here, even a relatively untrained analyst can do an effective job—simply by asking *why*. "To question is to improve," is far from trite.

Most of the superfluous paperwork generated in companies today will not withstand a good hard look, a searching question, even though the look or the question comes from someone not completely familiar with every detail of the department's work.

There are techniques involved, of course—but they are simple in nature.

Don't ask an executive or worker whether he needs a certain form or report. His instinct for self-preservation, if he is nervous, or his sense of his own importance, if he is confident, will make him say that he does.

Ask instead what information he *does* need to do his or her job.

Why does a supervisor cling to a form? One reason is the instinct for self-preservation.

Another reason is the belief that the more paper, the more prestige.

Forms re-design can aid paperwork simplification program

After he has told you, ask him why he needs the reports reaching his desk that carry completely superfluous information.

He will have to agree that it *is* superfluous, and that he doesn't really need it.

One copy of one paper or one form is eliminated. At least one person's time is saved. And carried out often enough, perhaps the entire report or form is eliminated. The analyst can make a note as to where the particular report or form originated. Later, in more detailed investigation, he can see whether it is needed at all by anyone in the organization. Or, if the information it contains is required somewhere, perhaps it can be picked up from some other source.

Perhaps our interviewee occasionally needs the information reaching him, but not consistently. Why then shouldn't he call the source of the information on the occasions when he really needs it?

For this should be another of our standards in analyzing closely the work of any given department. Whenever it is not really necessary, the written record should be discarded in favor of some other simpler, more direct method of communication. The data that are needed occasionally, but not always, should not be incorporated in a regular written report. They should be provided only when needed and requested.

Then look carefully at the department's routine work—the work that occupies the largest part of the time of the majority of the department's people. Look for the shortcuts that could be accomplished in that work without jeopardizing or compromising in any way the results of the operations the department performs.

Is the work coming to the department workers in a form that permits the fastest possible understanding of the information, or are essential facts scattered through a variety of media which *must be collated* before they can be used?

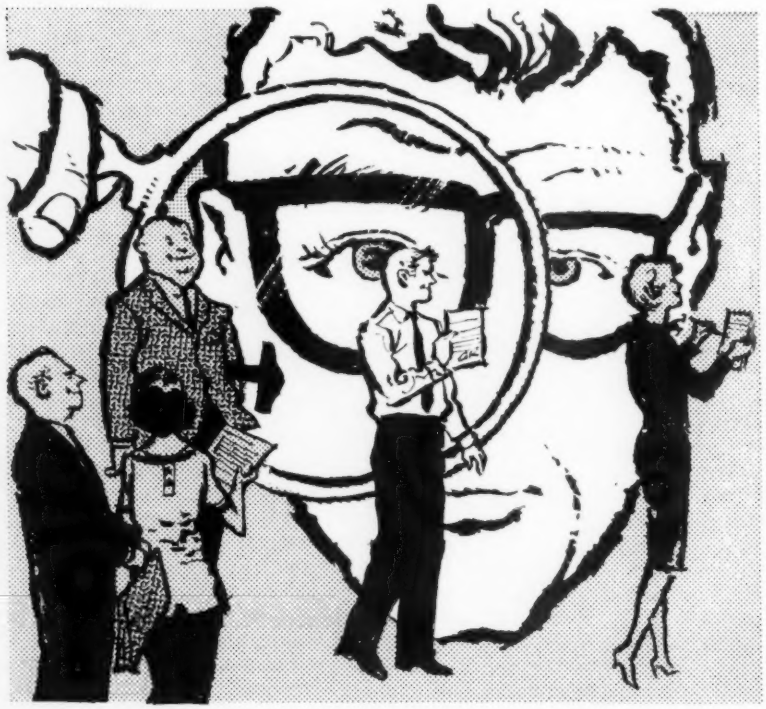
Is the simplest possible work procedure to perform the department's major objectives being followed?

Is every person doing a variety of tasks, or is the work systematized to the point where each person is doing a given part of the job?

Rough and ready? Perhaps—in terms of the minute system analysis that is recommended by so many experts.

But—it works. And it gives immediate results. The *refinements* on the results can follow: the scientific and painstaking forms re-design, so that each form used serves in the best possible way the needs of as many associated departments as possible; the *consistent elimination of superfluous reports,* memoranda, and correspondence, the incidental clutter and the waste that so often clog our company communications lines. But this first step rids us of the worst troubles first, making it easier to clean up the minor ones later. By first identifying and concentrating on our major problems, we make the remainder of our systems streamlining task a mopping-up operation.

And, by doing it in this way, we make it possible to carry out a true systems audit on a periodic basis, rather than a complete systems upheaval on a once-in-a-lifetime basis, on the one hand, or an isolated improvement on a fire-fighting, emergency basis, on the other. By hitting the high spots and cleaning them up, we are in effect doing what an auditor does: We are checking—and correcting—before any operation gets out of control. Moreover, we are doing it in a simple enough way so that we can repeat the operation at regular yearly intervals—an important factor in ensuring that improvements we make are permanent improvements—not something the department will institute as long as it knows it's under observation, and discard as soon as it feels the observer is safely back in his ivory tower.



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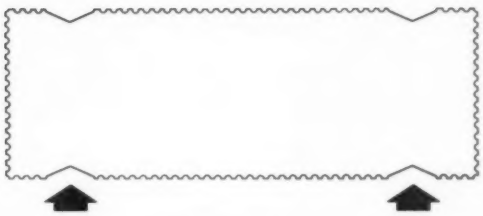

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Subjects at 41st international conference included leasing of data processing services, problems in delegating responsibility

ALTHOUGH stress diseases are today's major killers, executives are no more prone to such illnesses than any other company personnel, Dr. Gerald Gordon, chief, Psychiatric Section, Du Pont Medical Division, reported at the closing session of the National Office Management Association's annual conference in Montreal, May 22-26.

Rather, social and economic pressures are the major causes, Dr. Gordon reported, and the incidence of stress diseases is no higher for managerial personnel than for anyone else holding a job.

"Psychological or emotional stress can have the same effects" as any other illness-causing factors on physical health, the psychiatrist declared, but it is the repression of emotion rather than emotion itself which creates the stress.

The four basic phenomena of the nervous system—pain, hunger, fear, and rage—are essential for man's survival, the specialist continued. "However, although the same purpose is served by all four phenomena, man has quite arbitrarily decided that the Creator has made an error by putting fear and anger into him, and that this error must be corrected."

Actually, such repression is dangerous, he said. "Emotions work like the pain which gives us warnings to remove a cinder from the eye. They tell us to look into our lives, see what's wrong, and fix it up. With repression, all the little increments of emotional energy which accompany each event accumulate to a considerable degree of tension, for the danger becomes more serious in the aggregate. When tension rises high enough, it may begin to seek other outlets through perfectly innocent organs—the stomach, the heart, the blood vessels."

Usually, however, "there is very little inherent in the job situation to create emotional difficulties," Dr. Gordon declared. Rather, it is the importation of outside troubles into the job situation.

Dr. Gordon was one of four speakers at the closing sessions of the Montreal meeting, which followed a pattern of simultaneous ses-

J. J. Green (right), national chairman of NOMA's publicity committee, supervises presentation of publicity albumn plaques to R. W. Reynolds, Chicago; K. P. Jordan, Cincinnati; T. G. Cutler, San Francisco; H. J. Blackley, Charlotte, N.C.; Eric D. Thompson, St. Johns, Newfoundland. Chicago chapter's third victory retired grand champion publicity plaque.

sions following the opening day meetings on Monday, May 23. Other speakers on the heavy schedule ranged in subject matter from employee orientation to data processing feasibility studies—from discussions of "When do you delegate?" to planning personnel requirements in the '60s.

W. W. Muir, president of W. Wallace Muir & Associates, Ltd., Omaha, seemed to echo one of Dr. Gordon's contentions in his talk on "When do you delegate?" The attitudes that are brought to the job are the important point in setting up a consistent pattern, he declared.

"Effective delegation is orderly delegation," he said. "What are the factors one should consider when delegating? The first is the objective. What are we setting out to do?

"2. Who is going to be accountable for accomplishing the delegated objective?

"3. How much authority will he require, and how is the authority to be derived?

"4. When is he to report and to whom and in what form?"

The points may seem obvious, he continued, but many executives don't really follow through on them.

NOMA President R. B. Hodges, Framingham, Mass., (above) cuts ribbon of punched paper tape to open conference proceedings as "Miss Secretaries of 1919, 1960, and 1999" selected by Montreal chapter look on. Keynote session (below) is well attended.

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Delegate by subordinate's function, not title, NOMA speaker urges

"Take the first point: What is the objective? How often have you discovered some time after a job has been given to a subordinate that he didn't really understand what he was supposed to be doing?"

The subordinate's fault? Not necessarily, according to Muir. "The ineffective delegator is likely to be an ineffective communicator. Many a man does it himself because his 'stupid' subordinates can't seem to get through their skulls what it is he wants them to do. It is unlikely that any of you can recall hearing a supervisor or an executive explain that he was doing his own chores because he could not communicate well enough to give them to somebody else."

Delegation is actually a simple enough principle of effective utilization of personnel, he continued. Good organization implies that each level of authority should handle the most difficult problems it can. The fact that a higher level can also handle the same problems is immaterial. The higher level can handle more difficult situations; every moment given to the simpler problems is actually time wasted. Moreover, it inhibits the growth of the junior level.

Although proper delegation is imperative as a part of good management development techniques, the subordinate should not be left entirely on his own, Muir warned.

"There is a point at which it seems natural and gracious, friendly and helpful to check," he said. "The responsibility we have delegated remains our own, so we check because we are personally involved and we check because we are sincerely anxious to train the subordinate. Stretch the capacities of your subordinates for efficiency and for growth, but be available. This can be a terribly lonely world for the manager who has been given an assignment which is almost but not quite too much for him."

Accountability is another danger point, Muir stated, urging that, whenever a function or responsibility is delegated, some one particular person be made fully responsible for it.

Delegate by the subordinate's function rather than by his title on the organization chart, he told the NOMA delegates.

"Essentially, a functional chart is merely an organization chart with the functions of each position on the chart specified below the name of the position," he said. "As in job evaluation, it is helpful in the first instance to consider the functions of the position as distinct from the incumbent. If you find that functions which, in your opinion, should be delegated from an organizational standpoint, cannot be delegated because of weaknesses of individuals in the organization, then it might be well to consider making some changes."

Use of service organizations

Delegation, not of responsibilities, but of work loads was the topic covered by R. K. Friedman, Director of Headquarters Services, Post Office Department, Washington, D. C. Discussing the role of service organizations as a "Second Staff," the Tuesday afternoon speaker said that the use of outside services for clerical tasks should be as acceptable to business as the use of outside consultants to aid management.

Some of the most common clerical areas in which service organizations can be extremely helpful, according to Friedman:

Computer and Data Processing Services: "There are many companies that can and do provide, on a service basis, data processing assistance.

"By making use of computer services organizations, a small businessman can take advantage of the most powerful data-processing machines available, without making any capital investment and without hiring additional personnel. Computer services organizations can enable the small business manager with a limited staff to cope with many complex problems in such fields as engineering, production, distribution, marketing, and accounting. They can help him to operate more efficiently and take on more work. Above all, perhaps, they can provide him with data that until now were the exclusive province of much larger corporations.

"One small manufacturer now re-

Fred A. Schultz (left), secretary of Unity Mutual Life Insurance Co., presents president's plaque to retiring president Walter Emmerling, of Proctor & Gamble Company.

ceives a complete sales and inventory analysis once a week—sometimes once a day when volume is high. This enables him to balance his operations, preventing overproduction or under-production, while keeping inventories low but still without the risk of running short.

"One computer services firm specializes in rapid data-processing for banks that do not have their own computers. At 6 p.m. each day, the computing firm receives from various banks the posting documents, new account data, figures on instalment payments received, and so on. At 8 a.m. the next day, the banks receive the day's complete transaction journal, and every five days they receive new borrowers' payment books, delinquent accounts lists, and the like—all prepared by the computer. The result? The banks are able to give excellent service to their customers, with fewer personnel and lower costs, and with less delinquency.

Tabulating and Statistical Services. "Many of us have used 'service bureaus' to do card punching, analysis and statistical work, to use cards for compiling and extracting market research, sales, budget, and other data.

"Many of these service bureaus are located in large cities. Their rates are low and the services good. A local accounting firm recently used a service bureau to install a punch-card tax system for a local county government, without the need for installing a complete set of equipment."

Records Management Services. "This type of service is most useful when installing new or revised systems, when converting to a new, improved records operation. Where the need exists to provide indexing, microfilming, or records retirement service, these service organizations can do an outstanding job, at reasonable rates."

Duplicating and Reproduction Services. "You have heard the old adage or cliche 'Make or buy printing.' A very large number of companies today use outside services to provide blueprints, whiteprints on engineering, or manufacturing items. The use of these services has extended to mimeograph, offset, folding, stuffing, addressing, headline setting, and mailing list services. Photographic services for black and white, color and laboratory work are now well-used and extensive."

Composition Services. "There used to be a time when all printed materials were typeset. Today, office managers use varityping and proportional-spacing machines to produce publications, lists, advertising, forms, charts, automatic letters (robot-typing by Robot, Autotypist, Flexowriter, and Justowriters)."

Equipment rental areas

"Much office equipment is available to the office manager through outside agencies. There are, of course, all kinds of arguments for and against buying equipment, on the one hand, and leasing or renting it on the other. We shall not argue this point here but will confine our attention to the various types of equipment which can profitably be rented from outside agencies.

"Areas where equipment can be profitably rented are:

"Typing and Office Machines—To handle peak or specialized job situations, or unique problems, such as a convention, meeting, etc.

"Desks, Chairs, Drafting Equipment, and Office Furniture—To provide facilities or equipment on a short-range basis; also to take care of expansions for specialized jobs.

"Reproduction Equipment—Varitypers, offset, and other duplicators can be effectively rented.

"Vehicles—We are all familiar with the wide availability of rentals of motorcycles—trucks, in all sizes and styles.

"Data-Processing Equipment —

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"Service Equipment—Staging for painting, relighting; forklift trucks for materials handling, dumpster equipment for trash removal are types of service items frequently rented.

"Conference Facilities—Conference rooms are frequently rented to meet specialized needs.

"Cafeteria Equipment — Food service equipment also can be rented.

The speaker warned, however, that, although equipment rental presented comparatively few problems, the use of outside people, the second staff, did offer some. Close rapport between supervisors from regular staff and outside people is essential, as are more guidance and control by supervisors.

Selection and training of supervisors capable of such guidance and control had been the subject of an earlier speaker, P. J. Foley, assistant public relations director, State Mutual Life Assurance Co. of America, Worcester, Mass. He defined job knowledge, the ability to get work done through others, and the ability to organize and delegate as the three basic supervisory skills.

However, these standards must be applied realistically, he cautioned. "The higher you raise your sights initially, the fewer people you will have to choose from. Thus we must be sure that our selection requirements are realistic, that they account for current levels of staffing within the organization as well as external employment factors."

Other speakers on the program included Robert D. Armstrong, George R. Bailey, M. George Bastianello, Chester L. Brisley, G. Egerton Brown, Norman J. Brown, John R. Crowley, Herbert W. Dean, Kenneth Curtis, F. Stanley Kilner, L. J. Lacey, Herbert H. Lank, Marc Loder, Arthur A. Mackey, Ralph H. Markus, Nicholas L. A. Martucci, Glen Massman, Milton E. Mengel, Edward N. Saveth, John F. Shafer, John Stubbs, Clayton E. Sumner, Robert E. Walker, and William E. Williams.

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AUTOMATION IN THE OFFICE

IBM, FRIDEN UNVEIL TAPE CONVERTERS

Also newly announced are Remington Rand's high-speed Univac III, General Electric's medium-priced GE-225

GE-225 goes through engineering tests at General Electric's Computer Department, Phoenix, Ariz. New computer is company's first entry into medium-priced market.

Stromberg-Carlson engineer inspects printed copy produced by S-C 3000 High Speed Communications Printer. U. S. Army Corps of Engineers bought 25 of the printers.

GE computer can handle eight types of input

The computer department of the General Electric Company has asserted that its new medium-priced, general-purpose computer has a lower cost, per computation, than any computer in its class. A main feature of the new GE-225 is a "General-Compiler" a programming technique by which the computer is said to translate automatically English words and symbols into machine language. According to the company, the new development allows the computer to be programmed by personnel with little or no formal training in modern computer language.

The GE-225, the fourth transistorized data-processor introduced by the company's three-and-a-half-year-old computer department, is said to be capable of handling eight different types of peripheral devices ranging from magnetic and punched-paper tapes to high-speed printers, card readers, mass storage memories, and MICR devices. The new computer operates on low-power requirements and is described by Lacy W. Goostree, Jr., department manager of marketing for GE, as "the most flexible computer system available."

The GE-225 is priced in the $125,000 to $400,000 range depending on peripheral equipment, and will lease from $4,000 to $12,000 per month under the same stipulation. First deliveries of the computer are expected late in the year.

Stromberg-Carlson sells 25 printers to Army

The purchase of 25 S-C 3000 High Speed Communications Printers by the U. S. Army Corps of Engineers was recently announced by the Stromberg-Carlson division of

General Dynamics Corporation. The S-C 3000, an electronic printer that combines the Charactron-shaped beam tube with the Haloid Xerox, Inc., dry, electrostatic, printing process, is designed to read out data from computers, telegraph, and radio communication devices. The machine prints communications at 3,000 words per minute and will operate on-line or off-line as a computer printer.

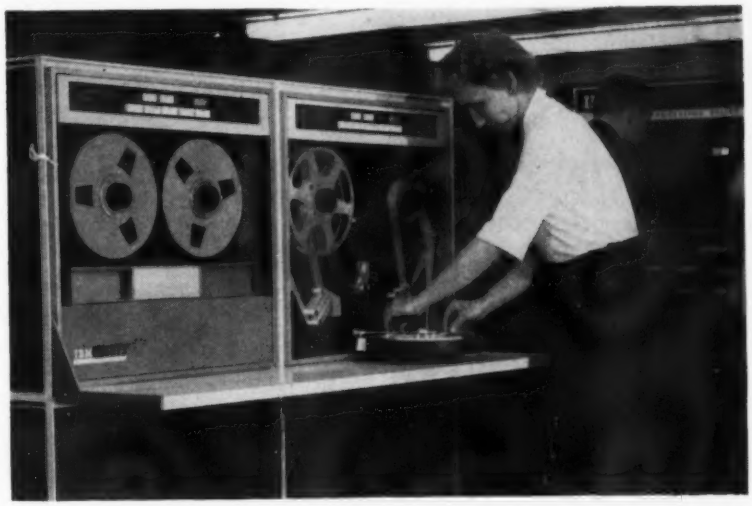
The printer receives output from computers or communication links, which is translated into the appropriate characters on the face of the Charactron-shaped beam tube. A revolving selenium-coated xerographic drum receives a light image from the tube and creates an invisible electrostatic image which is eventually transferred to an untreated paper and thermally fused to create an indelible copy. The printing is accomplished without impact and without the use of liquid developers.

Friden tape converter called "missing link"

A machine capable of converting 5-, 6-, 7-, or 8-channel punched tapes, one to the other, has recently been introduced by Friden, Inc., Rochester, N. Y. Considered by the company to be a missing link in many punched tape data processing applications, the Punched Tape Code Converter operates at 1,180 codes per minute and can accept 11/16-, 7/8-, or 1-inch widths after the operator makes a simple adjustment. A special punch and reader unit, which is optional, enables tape to be converted for teletypesetter operation, the company said. Punched tapes of the 8-channel type, a by-product of the Friden Flexowriter, can now be converted to 5-channel tape for wire-transmission by the Friden Code Converter. Other common uses for the unit listed by the company are the processing of tapes for Graphotype address plate embossing, computer input, and machine tool control. An automatic parity check is a standard feature of the new Friden device.

IBM accessory transfers data to magnetic tape

A computer accessory device that transfers data from punched paper tape to magnetic tape was announced recently by International Business Machines Corporation. The new IBM 7765, a paper tape reader with photoelectric reading mechanism and a magnetic tape writing unit, converts paper tape to magnetic tape at the speed of 150 characters per second. Both 5-channel telegraphic code and IBM 8-track (858) code tapes can be converted by the standard machine in 11/16-, 7/8-, or 1-inch tape widths. IBM added that paper tape codes whose information content does not exceed six bits per character position may also be processed on the standard IBM 7765. Both chad (punched hole), and chadless (punched flap) paper tape is acceptable for conversion in the IBM solid state machine. The unit does not require special air conditioning and operates from a 115-volt power connection. Interconnection with other computer units is not required. Monthly rental of the IBM 7765 has been priced at $1,475. Purchase price is $69,500.



Friden Punched Tape Code Converter (foreground, above) converts 5-, 6-, 7-, or 8-channel punched paper tape. New IBM 7765 (below) transfers data from punched paper tape to magnetic tape for direct—and thus much faster—input to computer.

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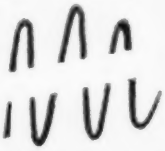

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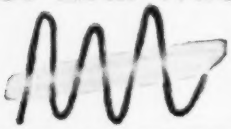

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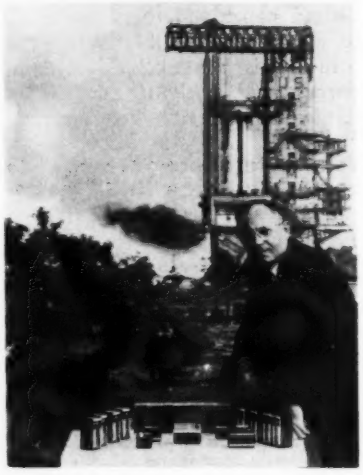
IBM also announced that America's Project Saturn, which will send multi-ton payloads into deep space, will be mathematically "flown" on the IBM 7090 system shown above. Each "flight" will take only a few minutes on the computer at Marshall Space Flight Center, Huntsville, Ala. Reviewing the solar system flight calculation are Dr. Wernher von Braun (right, above), director of the center; Dr. Helmut Hoelzer (left, above, and right), director of the center's computation division; and Dr. Eberhard Rees (center, above), the center's deputy director for research and development.



Five big problems face computer industry: Lasher

More than 80 per cent of electronic computers sold 10 years from now will be used in applications unheard of today, Clair C. Lasher, general manager of General Electric Company's Computer Department, predicted recently.

Speaking in New York before the annual meeting of the National Federation of Analysts Societies, Lasher said that this year's estimated computer industry volume of $1.1 billion is possible because "there are many types of computing equipment being produced which were impractical five years ago, and they are being applied to problems and situations that were not deemed economical applications five years ago."

He traced the phenomenal growth of the computer industry "directly from the progress of electronics during World War II." Computers "would be no more than a laboratory tool today had it not been for the perfection of the modern techniques of electrical control and amplification, both dependent upon the existence of such devices as the transistor," Lasher explained.

He pointed out, however, that five major problems now facing the industry must be solved if computers are to continue to satisfy a fundamental need:

1. Understanding and development of their applications;
2. Simplifying programming;
3. Greater reliability of computers;
4. Standardization of both hardware and computer languages;

5. Necessity for plowing money back into the business for the future, including basic research and development, and providing a base for continued lease-financing.

The General Electric computer expert described information handling as one of the important fundamental methods of increasing productivity through automation. He described automation "not as a problem of the future but rather as the only solution to a problem of the future."

As a result, Lasher said, "we believe this electronic automation business will have the greatest growth of our economy during the 1960's, and have a total industry volume of more than $20 billion by 1970—up more than 300 per cent over last year's estimated industry volume of some $6 billion." Computers, he said, are the heart of all automation.

Rem Rand's Univac III has 32,768-word memory

A solid state computer, Univac III, described as having a processing speed nine times faster than its predecessor, Univac II, has been announced by Remington-Rand Univac Division of Sperry Rand Corp. By using printed circuits similar to those in Univac Larc, the Univac III can maintain the operation of peripheral equipment without affecting the central processor. Fast-access magnetic core storage for the Univac III is available in multiples of 8,192 words with a total memory size of 32,768 words. To illustrate the processing speed of the new system, the company points out that a letter-sized file drawer can be stored on a single reel of tape and read in just 4.8 minutes. Auxiliary mass storage is accomplished with Uniservo III tape units, which allow reading, writing, and computing to be conducted simultaneously at a rate of 200,000 digits a second. The Univac III on-line card reader operates at 700 cards per minute; the high speed printer functions at 700 lines a minute.

The new Univac III will rent for $15,000 to $30,000 a month according to the demands of the user. The system is expected to be made available on the commercial market in approximately 18 months.

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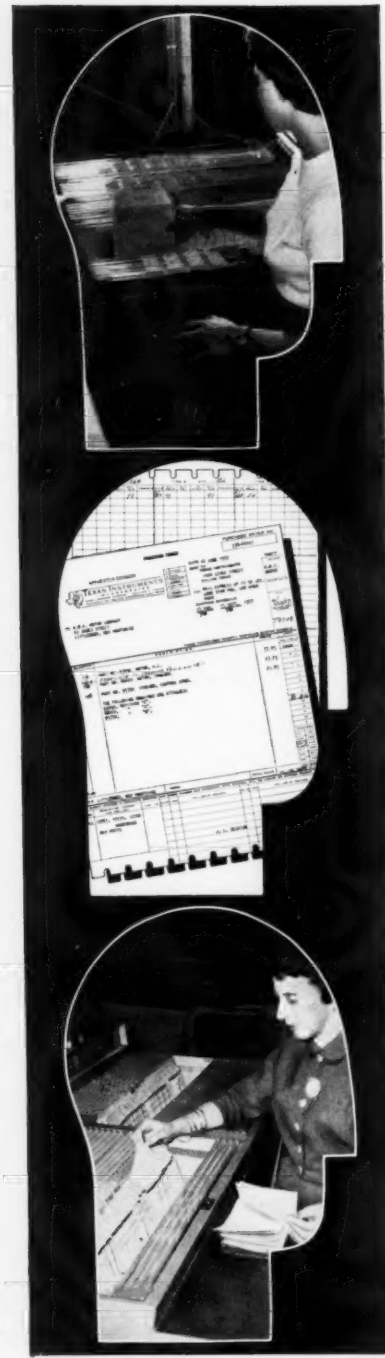

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AUTOMATION IN THE OFFICE

Control Data Division opens computing center

A computing center has been established by the Computer Division of the Control Data Corporation at its home office in Minneapolis, Minn., according to an announcement by Frank C. Mullaney, vice president and general manager of the division. Principal hardware in the permanent computer facility is Control Data's large-scale digital computer, the 1604. A complement of peripheral equipment includes two Control Data model 1607 magnetic tape systems, 80-column card punching and sensing equipment, a high-speed printer, on-line typewriters, and high-speed punched paper tape readers and punches. Control Data's model 160 intermediate capacity desk-size computer is also a part of the new facility, and a satellite in the recently announced "satellite computer system."

Universities, scientific, and business organizations will have an opportunity to use the computer center facilities on a service bureau basis. The center will also be used by Control Data to facilitate engineering design on new systems, as a proving ground for new items of input-output equipment, and for its own accounting operations.

NMAA conference elects Montgomery as president

The National Machine Accountants Association elected Lyman W. Montgomery as its president during the national conference held recently at the Mark Hopkins Hotel, San Francisco. Montgomery is a charter member of the Shreveport, La., chapter of the NMAA, and section head of methods and data processing for Interstate, Shreveport. He served as national director of the NMAA for four years, chairman of chapter organization and membership committee (west central division) for two years, national vice president of research and advisory for one year, and national executive vice president for one year. As president, Montgomery will assume executive direction of NMAA's 160 chapters consisting of 14,000 members.

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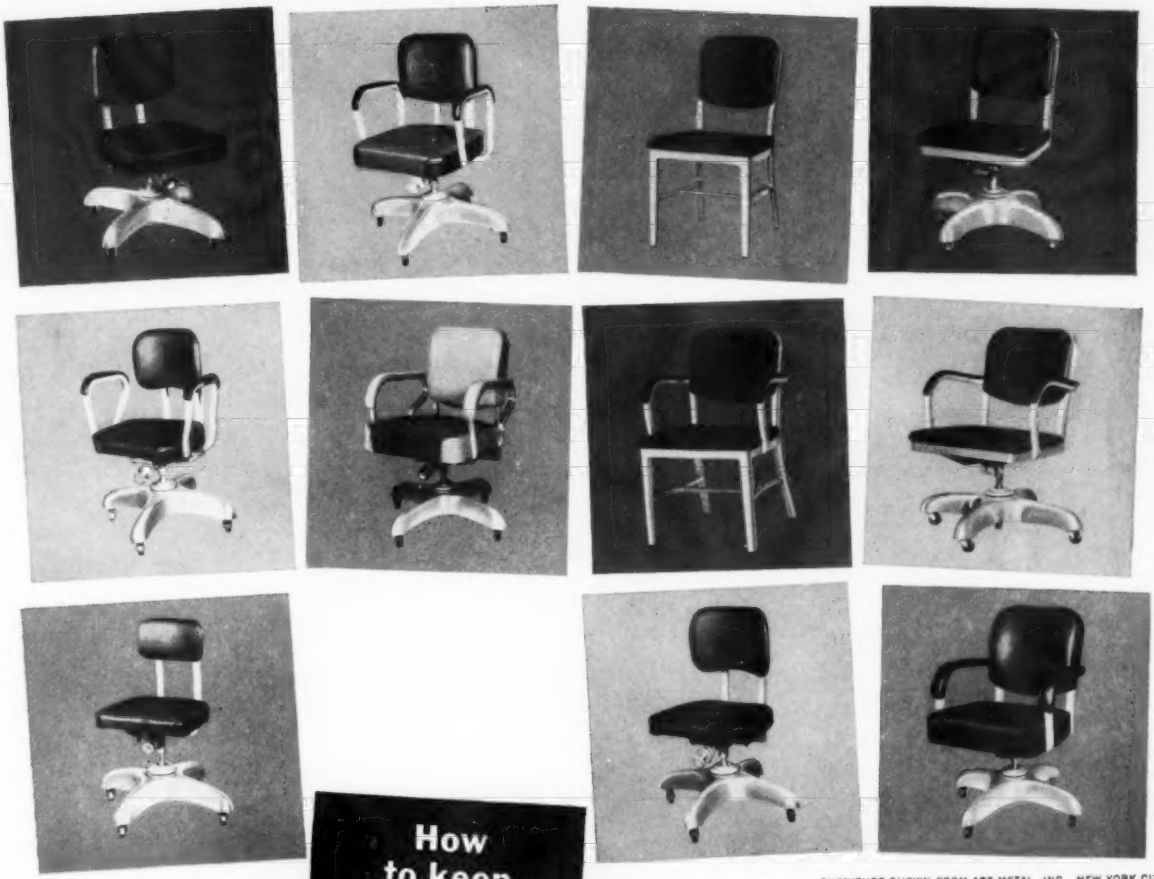

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OFFICE DESIGN

CONFERENCE ROOM HAS VARIED USES

No longer merely the sanctum of the board of directors, today's conference room adapts to many company needs

Unity of design is evident in conference rooms at Continental Grain Company. Shown above is small conference room.

Main board room at Continental Grain is dominated by 14-foot diameter circular table. Furniture was designed by Gerald Luss, of Designs for Business.

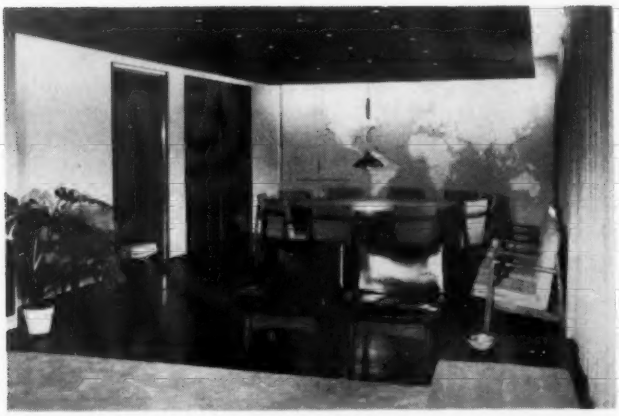
By JOHN ALLAN RHEA

OF ALL THE AREAS in the office, the conference room is probably the most versatile. To its traditional function as the board of directors' seat of power have been added many new uses. These include executive committee meetings, making presentations to customers and evaluating the presentations of vendors, motion picture screenings, staff conferences, cocktail parties, executive luncheons, running advertising campaigns "up the flag pole," salesmen's meetings and training sessions, stockholders' meetings, and many other uses, which vary from one company to another.

As a result, this multi-purpose room must be designed to accomodate two major demands: increased usage and greater variety of activities conducted within it.

The first of these demands can be resolved through careful planning to provide meeting facilities adequate to the needs of the company. A general guide to these needs is provided by Sydney G. Rodgers, president of the office planning firm of Rodgers Associates. He points

Semi-circular board table at Columbian Carbon Co. permits each participant to have clear view of central desk.



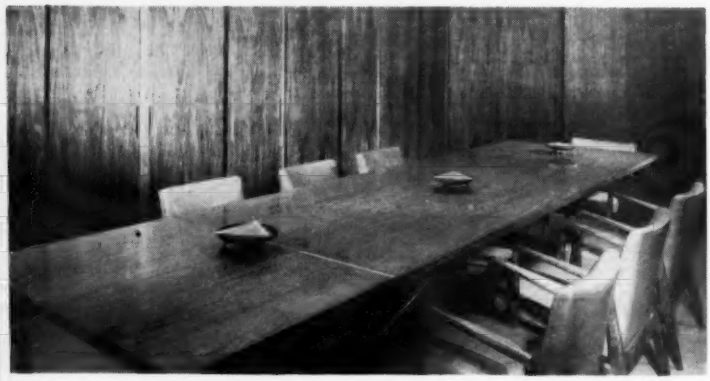
Highlight of board room at Olin Mathieson Chemical Corp. is suspended ceiling. Brass pulley light fixture is above circular conference table.

Private dining area adjacent to conference room, G. H. Walker & Co., Wall Street investment brokers, features mirror wall and crystal chandelier.

Private sales lounge at Tower Fabrics, Inc., has all the high-fashion appearance essential to fashion fabrics business, yet it is functional.

OFFICE DESIGN

Sliding panels conceal library in conference room of Henry Holt & Co.



out that the conference room should be used during at least 50 per cent of working hours. It is also preferable to provide a conference room for each department or division.

These guides are not inflexible, though, because the ability to schedule the use of the room and the requirements of the department using it usually determine whether a department needs its own conference room. A sales department, for example, may not be able to use a room half the time but still must always have a room available where salesmen can meet customers. In other cases, two or more departments may share a meeting room.

The second problem—wide variety of activities—gives the conference room a split personality. It must be luxurious enough to present a favorable impression of the company to visitors, particularly stockholders and customers, yet functional enough to be a working area. Some companies can afford separate rooms for each purpose, of course, but the high leasing costs of space in most metropolitan areas make maximum utilization of the conference room essential. A conference room that will comfortably accommodate six or eight persons, for instance, requires a minimum of 150 square feet.

An example of specialized conference room is this sampling room, designed by Rodgers Associates for National Biscuit Co., which is used for sampling recipes prepared in adjacent test kitchen.

Yet, conference rooms can also be an effective means to save space. Robert Gad, director of Shaw-Walker's office planning division, calls this type of room a "substitute for the promiscuous distribution of compartmented space (private offices)." Many employees do not need private offices, according to Gad, and have them only because they are able to convince top management that they are essential as places to meet occasional visitors. By providing multi-use rooms for these visits, the number of private offices can be reduced to a functional minimum.

Some companies go to the other extreme. In addition to furnishing private offices to many of their management people, they build small conference rooms connected to these offices for meeting visitors. The argument here is that adjoining conference rooms permit the executive to entertain more than one visitor at a time, entertain large groups, avoid unwanted visitors, prevent the visitor from seeing an unkempt desk, and speed up his visit.

The dim view of the connected conference room is that it is no more than a status symbol. Its critics point out that an individual conference room smaller than the private office defeats its own purpose. Whenever the executive has to entertain large groups, he obviously cannot do it in a conference room smaller than his own office. And a separate area of the reception room is just as good for politely turning away unwanted visitors or hiding a littered desk.

Once the uses of the conference room have been determined, the next step is to install facilities to satisfy estimated needs. These physical requirements will vary with each company or even with each department of the same company.

Since the conference room is intended for meetings of minds, it should be designed to eliminate wild colors, bright lighting, and high noise levels. Floors, ceilings, and walls should have a neutral effect on the conferees while they are doing what they came for.

This does not mean that the entire room should be furnished in beige or grey, however, or that all noise should be eliminated. In fact, some noise and some bright colors

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Godfrey Cabot conference room boasts rear-view screen.

can serve to stimulate interest as the conference participants enter the room. An example is a bright carpet, which accomplishes this result but does not distract them while they are seated at a table since they can no longer see it.

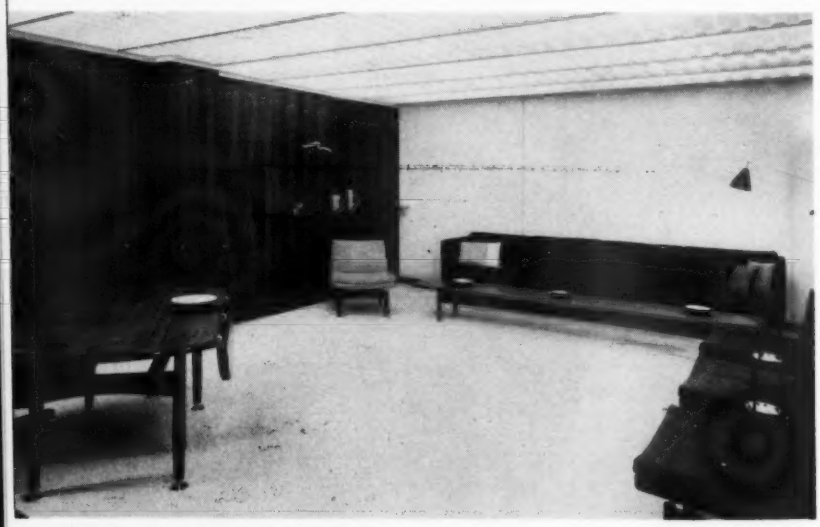
Lighting also should be designed to meet specific needs. A high level of lighting is essential to persons doing fine, detailed work—accountants poring over figures, engineers examining blueprints, etc. A group of top management persons discussing long-range company plans would require much less light.

Another physical feature that has become almost a trademark of the conference room is the long, massive table. It has been likened to an arena where combatants gather to do battle. It is not essential for all types of conference rooms. In top management meeting rooms a few coffee tables may be substituted, and high-backed chairs replaced by sofas and lounge chairs.

When a conference table is necessary, as it is for many companies, the trend is toward round tables. Gerald Luss, designer and vice president of Designs for Business, Inc., cites these reasons: The round table is the only type that permits visual contact among all participants, and it eliminates the need for shouting to be heard by someone at the other end of a long table. Thus, by making conversation easier, the round table stimulates participation.

When a group meets at a round table, the participants can take any seat. This eliminates the pecking order but does not diminish the authority of the presiding officer. The chairmanship of the meeting is obviously located wherever he is sitting. Experience with round tables, however, has not borne out the fiction that they promote democracy in business because the chairman is not really the symbol of authority, but only the first among equals. This fable is reminiscent of George Orwell's *Animal Farm* in which all animals are equal, but "pigs is more equal."

Informality is keynote in multi-purpose board room of Simmons Company, New York.



Another view of Simmons board room shows spaciousness. Room can accommodate eight to ten people for formal conferences; as an executive lounge it can handle 20.

One of the common misuses of conference rooms is the annual stockholders' meeting. This was a perfectly legitimate function of the conference room when corporations had few stockholders who could all gather in a small room. Today it is impractical to have a meeting room large enough to handle them if it will be used only once or twice a year. It is usually cheaper to rent a large room in a hotel.

Another misuse of conference rooms is the hand collating of memos or bulletins by clerical workers who walk around the board table gathering sheets.

Finally, the conference room should reflect the company itself—its attitudes, its people, its business. Like the reception area, the conference room is a window to the company through which visitors get their impression. It is essential that this impression be an accurate one.

NEW METHODS REDUCE OFFICE NOISE

Acoustical materials, techniques, enhance office environment

by JOHN M. SINE

Owens-Corning Fiberglas ceiling absorbs excess sound in General Fireproofing Bldg.

THE SPARK THAT RAZED Chicago in 1871 was the signal for a new era of architectural innovation. The sky was soon to kneel to the skyscraper, and the office would no longer cower in the corner of the factory. For the first time, it was possible to unite all the functions of a company within a building designed to accommodate the needs of its inhabitants. Functional unity was accomplished by a conscious grouping of materials and utilities into one coherent setting.

The advent of radiant heating and acoustical ceilings which also cool has cemented this unity of structure, materials, and design. Radiant ceilings have been highly praised for their acoustical efficiency (One manufacturer claims the ceiling will absorb 90 per cent of the sound striking it.), as well as "draft-free" heating comfort. The system consists of water-carrying coils (generally tube and fin construction) suspended from the ceiling between a layer of sound absorbing material and perforated metal panels which make the finished ceiling. Each metal panel is snapped easily to a suspended T-bar and can be removed at any time. Manufacturers of the system also make lighting fixtures that are interchangeable with the acoustical panels and lie flush in the ceiling. If a one million-square-foot radiant acoustical ceiling recently installed in the Shell Centre, London, is indicative of a trend, the system should become very popular.

Fire retardation is a function also served by the acoustical ceiling. Acoustical Fire Guard, an incombustible ceiling tile, is designed to protect the structural components of a building from fire by resisting the transmission of heat through the ceiling or from one area to another. Like a radiant acoustical ceiling, it is mechanically suspended.

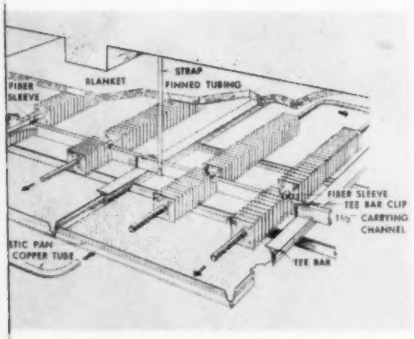
Acoustical ceilings are not limited to the regimented application of oblong or square perforated ceiling tile. Motif patterned tile is available as well as tiles of corrugated, striated, embossed, or fissure design. The application of acoustical tile is commensurate with the purpose and imagination of the designer. A mural of a local skyline was carved in one installation of acoustical tile of mineral composition. Although porous and sound absorbent, the tile allowed the artist to carve clean lines. The result was a first-class artistic and decorative presentation.

Sound inhibitors are not restricted to the ceiling. A naked room will reverberate with the sound of normal voices. But add a few pictures, a piece of furniture, and the noise becomes less spirited. Place a carpet on the floor and there is further reduction of unwanted noise.

Carpeting is perhaps the only floor material with the potential of reducing impact noise in the room in which it is created, as well as preventing it from moving downward. The cushion effect of carpet obviously eliminates such noises as heel tapping and the ordinary sounds of moving traffic. Moreover, tests made by the National Bureau of Standards proved carpeting capable of absorbing air-borne noises to a significant degree. Not only is carpeting acoustically efficient, it is an object of high design and a traditional symbol of luxury.

An office building that has been planned and constructed to acoustical advantage will have offices most needful of quiet located in the area farthest from disturbing sound. Additional application of sound absorbing materials in such buildings would be slight and considerably

OFFICE DESIGN



Schematic drawing shows interior of Johns-Manville radiant acoustical ceiling.

less expensive. When offices are redesigned, even redecorated, it is advisable to consult an acoustical engineer or a designer with similar capabilities. These experts can often bring about optimum sound levels by making simple changes in specifications such as an absorbent furniture fabric, floor-to-ceiling drapes, large planters, a tapestry, or more complex additions such as breaking a concave wall into several convex curves. Flat surfaces tend to reflect sound. Concave surfaces often focus sound undesirably and are generally considered hard to treat acoustically. The convex surface, however, tends to disperse sound evenly throughout the room.

Open work areas require specific acoustical attention, especially in accounting departments where office machinery has been installed in proximity to employees engrossed in the finer points of company finance. Partitions of the movable type, placed indiscriminately, and with thought only to division of space, though are often self-defeating. A partition over which normal conversations or ringing telephones can be heard is a potential liability. It might provide visual privacy and, in turn, create auditory curiosity which disrupts thought processes and breaks down work routines.

Such occurrences can easily be omitted by planning not only space and work flow, but the total condition of the working area: air, light, heat, sound, etc. Obvious errors in sound control are often made which might have been eliminated through consultation with an acoustical engineer.

A comfortable level of sound within the office can be achieved in two basic ways: by eliminating or reducing the sound at its vibratory source and by absorbing excessive sound.

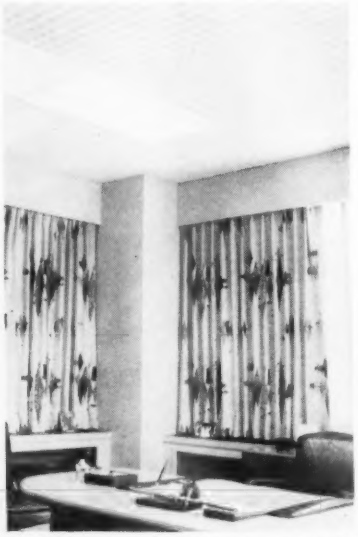
What is sound? It is a pulsation of air pressure emanating from a vibratory source that stimulates auditory nerves of the ear which, in turn, transmit the sensation to the auditory center of the brain. The brain interprets the stimulus as sound.

A decibel is the unit of measurement for the loudness of sound (the physical intensity of a sound wave). The average person finds levels of sound above 85 decibels uncomfortable and disturbing. At 130 decibels sound becomes painful to the ear. The recommended level of sound to be maintained in the background of a general office area is from 40 to 55 decibels.

Vibrating machinery causes most of the unpleasant sounds found in the office, although means are available by which machine noises can be rendered less disturbing. Shock-absorbing machine mountings are made for larger equipment and are relatively easy to install. Special disk-type mountings, said to absorb an appreciable amount of vibration from smaller machines, are also available. A machine for desk top operation can be quieted by placing it on a felt or rubber sound absorbent pad. A decorative effect can be achieved, and the

This acoustical ceiling by Armstrong Cork Co., is made of striated mineral fiber tile.

The Gates Acoustinet device, using molded fiber glass, quiets teletype machines.



Ceiling texture is achieved with Plaid Celotone, acoustical tile by Celotex Corp.

acoustical efficiency increased, by covering the pad with an attractive square of carpeting.

Acoustical hoods that cover the machine on three sides and top have been found especially successful for equipment not requiring the constant attention of an operator. A teletype machine or automatic typewriter in an open office area can create unpredictable disturbances if the sound is not considerably muffled. A hood device should not make the machine inaccessable on any occasion, and should be illuminated from within for operator visibility.

Current acoustical theory suggests that the "content" of sound be isolated as much as possible. The conversation of two persons in an open work area should not be intelligible to persons outside the immediate vicinity. The "content" of the conversation – its audibility – must be suppressed and released into the general undercurrent of non-disturbing office noise. In one office an undercurrent of noise was artificially induced to counteract an over-acousticized space: a single air conditioner was installed to provide a constant low-level flow of sound that would take the edge from otherwise distinct, and disturbing, noises.

Excessive sound that cannot be eliminated at the source must be absorbed throughout the room. For sounds reflected from surface to surface, acoustical materials such as tile, fabric, and carpeting must be applied. Two measurements are commonly used in grading acoustical materials: SAC (Sound Absorbtion Coefficient) represents the peak performance of a material at a specified pitch; NRC (Noise Reduction Coefficient) is the most useful measurement for office purposes since it registers the average sound absorption over a full range of pitches which normally reach the human ear. The NRC of acoustical tile generally runs from .50 to .80, and may rise to .90 in high performance installations.

The science of acoustics is closely related to the art of decoration. Products such as acoustical paint disclose an inseparable quality, an elemental relationship between the science and the art—both of which we recognize as inseparable from modern office design.

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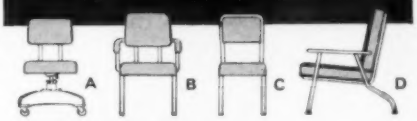

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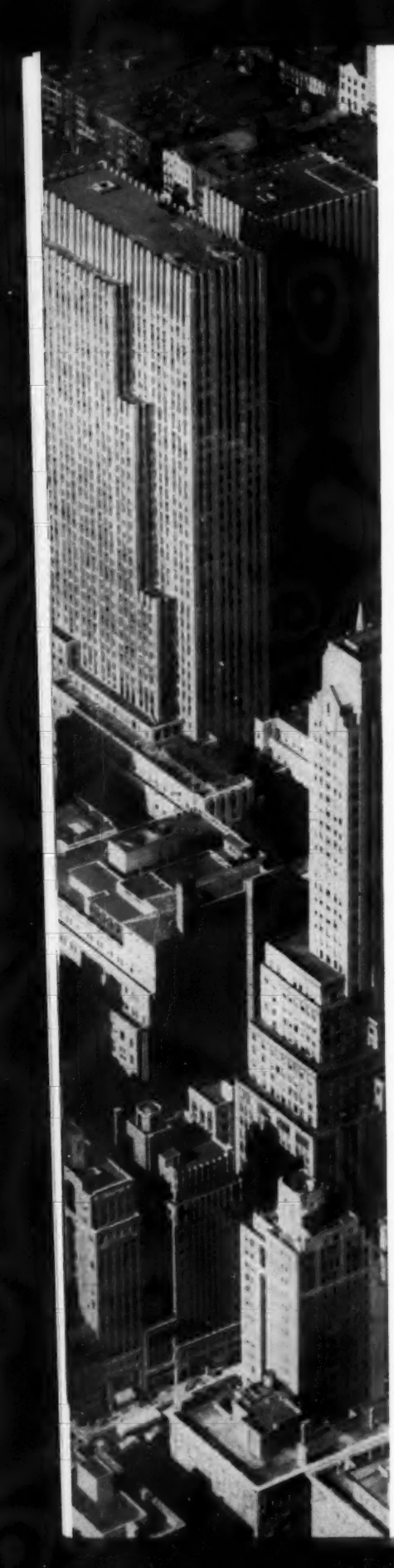


OFFICE MARKET WILL PASS SIX BILLION FIGURE IN 1960

Estimate is based on Office Management survey which indicates factory sales will exceed five billion

THE OFFICE EQUIPMENT and supplies industry will cross the five billion dollar mark in manufacturers' sales this year.

This new record, climaxing a decade of dramatic growth, is revealed in a new economic survey conducted for *Office Management and American Business* by D'Orsey Hurst and Co., New York consulting and market research firm.

Since the figures in the survey are based on manufacturers' prices at the plant, and do not reflect retail mark-up for the equipment and supplies sold through dealers, or shipping costs, the total size of the market at the consumer level can be confidently estimated as six billion dollars or more.

Basis of the 1960 predictions in all categories of office equipment and supplies were sales figures from the 1954 and 1958 Census of Manufacturers. An annual growth rate between the 1954 and 1958 levels was established in each category, mathematically evaluated and adjusted, and then projected through the end of this year to arrive at the 1960 estimates of total volume of sales. Figures were checked with interested associations, and individual manufacturers to assure the greatest possible degree of accuracy.

The five billion plus manufacturers' market is composed of these four major components:

1. *Office Machines.* This group consists of estimated producers' sales of computing machines ($1,220,000,000) typewriters ($190,000,000) and other office machines ($320,000,000). This group totals $1,730,000,000 at the manufacturer's level.

2. *Office Furniture and Fixtures.* The 1960 sales of these products, which include desks, chairs, shelving, partitions, and related items, are estimated at $635,000,000.

3. *Office Supplies.* Manufacturers' shipments in this area, which includes pens and pencils, binders, various types of paper, carbon paper, and other supplies such as rubber bands, erasers, and ink, are estimated at $1,928,000,000 for 1960.

4. *Other Equipment and Furnishings Sold to Offices.* This category includes a large array of items that are purchased by offices although office purchases may be only a relatively small part of total sales. Specifically, but not inclusively, the items in this area include hard and soft floor coverings, ceiling tiles, air conditioners and water coolers, lighting fixtures, blinds, draperies, and other furnishings produced primarily for the consumer market. Offices currently buy an estimated $750,000,000 worth of products in this category.

Purchases of items for office use in these four categories are expected to total $5,043,000,000 in 1960.

In terms of growth, computers and related accounting equipment —electronic, electro-mechanical, and manual—have experienced the most spectacular results. Manufacturers' shipments were $501,100,000 in 1954, $968,000,000 in 1958, and are estimated at $1,220,000,000 in 1960. The category includes accounting and bookkeeping machines; punched card systems and cash reg-

isters; adding machines; calculators; electronic computers and electronic data processing machines, parts, and attachments. Computers alone experienced a growth from $35,600,000 in 1954 to $340,500,000 in 1958. For 1960 the figure is estimated at $520,000,000.

Typewriters, stimulated by the advent of electric models, experienced a substantial annual growth rate, and 1960 manufacturers' shipments are estimated at $190,000,000. Electric typewriters, which will make up an estimated $73,000,000 of these sales, have had a 15 per cent growth rate.

Photocopying, microfilming, and related supplies are now an estimated $135,000,000-a-year market which would represent a 13 per cent annual growth rate. Dictating machines, meanwhile, have remained stable at about $21,000,000 a year.

Furniture sales rising

Office furniture and fixtures are estimated at $635,000,000 for 1960, which would be 8 per cent growth over 1959. This is based on a projection of the growth from 1954 ($395,300,000) to 1958 ($547,800,000). The breakdown of this category shows these 1960 estimates; metal furniture, $325,000,000; wood furniture, $75,000,000; partitions, shelving, and lockers, $187,000,000; safes and vaults, $48,000,000.

The 1960 total of manufacturers' shipments of writing equipment is estimated at $218,000,000. By comparison, it was $169,100,000 in 1954 and $200,400,000 in 1958. Pens and mechanical pencils are expected to make up $145,000,000 of the 1960 total, lead pencils and crayons, $73,000,000.

Sales of loose-leaf binders and devices, expected to total $110,000,000 in 1960, are growing at about 8 per cent a year. Sales were $70,500,000 and $95,200,000 in 1954 and 1958, respectively. Manufacturers' shipments of blankbooks and paper ruling are growing at 15 per cent annually—from $60,800,000 in 1954 to $107,500,000 in 1958 to an estimated $140,000,000 in 1960.

Envelopes will gross $270,000,000 for manufacturers in 1960, according to the survey's estimates. Shipments were $197,300,000 in 1954 and $241,700,000 in 1958. The 1960 estimate for carbon paper, stencils, and inked ribbons is $130,000,000, which represents a 7 per cent annual increase from $91,000,000 in 1954 and $119,400,000 in 1958. Office paper is also experiencing a 7 per cent annual growth rate. Figures are $430,200,000 in 1954, $570,500,000 in 1958, and an estimated $650,000,000 production in 1960.

The dramatic and continuing rise in the total market for office products, of course, reflects to a degree the prosperity of business in general and the continuing expansion of the markets which business serves. In addition, however, specific trends in the economy have forced the expansion of the office market at an even higher rate than that existing for the economy as a whole.

OFFICE EQUIPMENT INDUSTRY GROWTH RATES (SELECTED ITEMS)

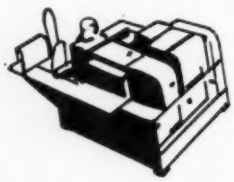
ITEM	1954 manufacturers' shipments	1958 manufacturers' shipments	Estimated production in 1960	Estimated annual growth rate
Accounting and bookkeeping machines	$ 80,200,000	$102,300,000	$ 115,000,000	6%
Punched card systems and cash registers	190,900,000	194,500,000	196,000,000	0
Adding machines	48,500,000	45,600,000	45,000,000	0
Calculators	39,300,000	47,400,000	52,000,000	5
Electronic computers and data processing machines	35,600,000	340,500,000	520,000,000	*
Parts and attachments	64,900,000	161,600,000	200,000,000	11
Other computing and related machines	41,700,000	76,100,000	92,000,000	10
Total computing machines	$501,100,000	$968,000,000	$1,220,000,000	12%
Typewriters (total)	123,500,000	164,900,000	190,000,000	7%
Photocopying, microfilming and related supplies	65,400,000	105,300,000	135,000,000	13
Dictating machines	20,500,000	21,000,000	21,000,000	0
Metal furniture	193,500,000	273,600,000	325,000,000	9
Wood furniture	52,400,000	68,300,000	75,000,000	7
Partitions, shelving, and lockers	115,400,000	160,900,000	187,000,000	8
Safes and vaults	34,000,000	43,000,000	48,000,000	6
Total office furniture and fixtures	$395,300,000	$547,800,000	$ 635,000,000	8%
Writing equipment (pens and pencils)	161,100,000	200,400,000	218,000,000	5%

* Due to rapid growth of electronic data processing industry, percentage would not be meaningful.

Today, the office is as important as the assembly line

Among these trends are the accelerated rate of office building construction, the growth in office worker employment, intensified technical development, and expanded use of specialized equipment. All contribute to make the office equipment industry one of the most dynamic sectors of the American economy.

The record growth of the office equipment industry is also indicative of a significant transformation



of the nation's business structure and operations which began after World War II and gathered momentum with the recent prosperity. One of the forces at work is a substantial increase in the size of firms resulting from mergers. Although growth enables firms to effect numerous economies in production and distribution, it simultaneously compounds the problems of administration. Organization, controls, record keeping, departmentalization, supervision, reporting, and other functions of administration have grown steadily more complex in the period since the war.

Moreover, heightened competition in the market place, rapid changes in the structure of demand, and a continuous flow of new products have given planning and general administration an increased importance in modern business. As a result, "the office" has become as important as the assembly line for successful marketing in today's economy.

A few simple figures illustrate this change. During the past decade the total number of persons employed in non-agricultural pursuits increased by some 13 per cent, but those working in manufacturing rose only 3.5 per cent. Within manufacturing itself, the number of production workers actually declined during the decade, while other employment—clerical, professional, administrative—advanced by 45 per cent.

The total office population (including government) is now 16,469,000 and is distributed as follows:

One in every 174 office workers is in mining.

One in every 49 office workers is in construction.

One in every three office workers is in manufacturing.

One in every nine office workers is in transportation or communication.

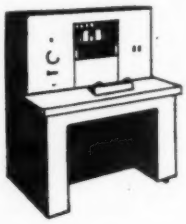
One in every seven office workers is in wholesale or retail trade.

One in every 10.6 office workers is in finance, insurance, or real estate.

One in every 54.7 office workers is in service industries.

One in every 3.6 office workers is in government service at either the federal, state, or local level.

The increase in the office work force and the greater complexity of the administrative function have



triggered sharp gains in construction of additional office space. In a period of prosperity this demand has been met by an accelerated building boom. Over the past five years total construction—houses, stores, schools, factories, office buildings, roads, etc.—increased by about 30 per cent, as measured in dollar value. Office building construction alone, during the same period, has grown by 50 per cent.

The industry has also experienced considerable thrust through the innovation and development of new products. Many items long in the field have been so improved as to hasten obsolescence of existing equipment. Electric typewriters are an example. The most explosive developments, however, have been in the entire computer machine business. Here vastly new concepts and equipment have been developed which not only make possible a sharply increased efficiency in standard office operations, but also have opened up enormous new vistas of control and planning.

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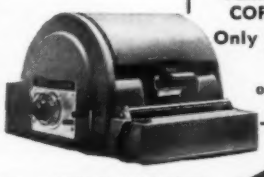

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MAILROOM EQUIPMENT, TIME RECORDERS, AND NUMBERING MACHINES

By MARY D. LYONS

THE ITEMS mentioned in this section under the heading of mailroom equipment are often located in departments other than the mailroom. Addressing and collating devices, for instance, are very often situated in stenographic and duplicating areas. However, all of the equipment to be discussed—addressing equipment, collators, folding and inserting machines, opening and sealing machines, postage metering machines, stamp affixing machines, postal scales, and sorting devices—play an essential role in the mailing function.

The second category of office tools discussed in this section is numbering machines and time stamps.

The most common types of addressing devices "print" addresses from embossed metal plates, spirit masters, and stencils. The masters for the last two types can be prepared in individual form or in strips and rolls.

A form of coding is employed for many techniques so that classes of addressees can be withdrawn from master files for selective mailings. Some machines are able to select addresses automatically; in others, the codes simply enable individual addressees in a particular category or group to be identified by the operator as he meets them.

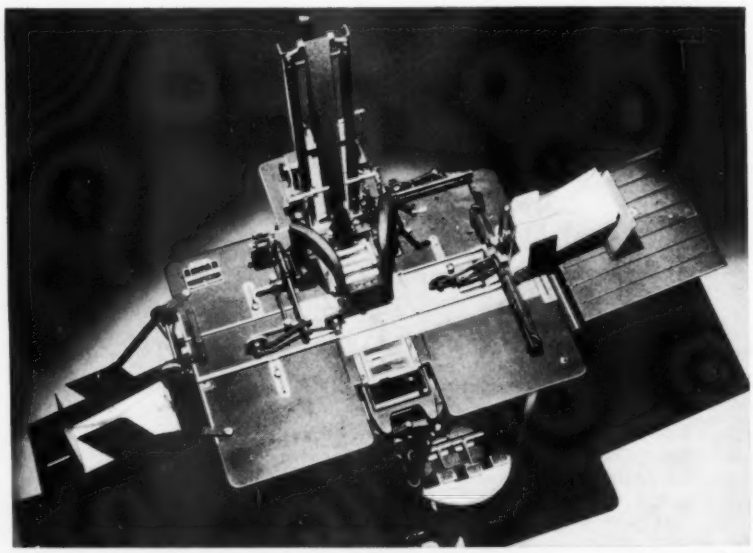
There are various methods employed to simplify the addressing process. Punched card postcards, for instance, are a big help since they eliminate the inserting process. They are used feasibly, however, only in companies where other operations are also handled by punched card equipment. Window envelopes are another catalyst to mailing efficiency since they not only reduce the addressing anathema, but also eliminate the possibility of sending mail in the wrong envelope.

More intriguing and complicated methods utilized today include an adaptation of the photo-electric reproduction method known as facsimile, and of an "electrostatic" process in which an optical system projects an address onto a label in such a manner as to create an electrical charge; the charged characters and numerals attract oppositely charged ink in the form of a spray. The latter technique, not unlike the xerographic copying process, is capable of operating at speeds of thousands of lines per minute.

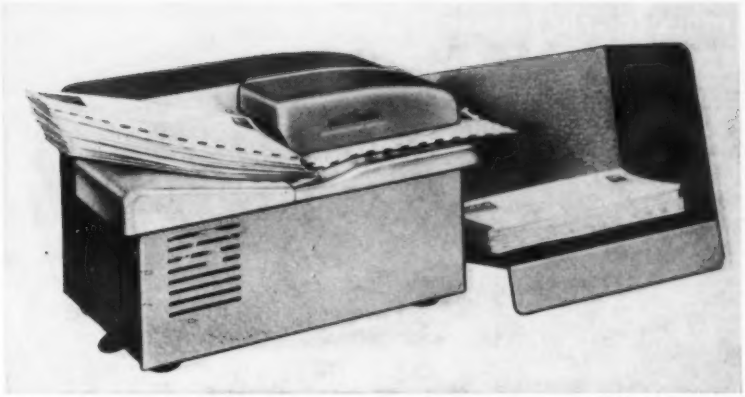
Integrated data processing systems incorporate both these methods. Names and addresses themselves can be prepared automatically from such "common language" inputs as punched cards and punched tape. The fact that the processes are actually able to "read" the printed material on them means that the addressing equipment can be integrated into a system under automatic control, regardless of how the address cards or tapes are prepared.

Embossed plates may also be prepared automatically by the use of graphotypes controlled by punched tape; while spirit masters and stencils may be created by one of the diverse forms of automatic typing.

A few machines not only address but also print the entire letter including date, letterhead, and sig-



Elliott Adressing Machine Company's Model G-EW features automatic operation, versatility and selectivity; it can address up to 10,000 pieces of mail per hour.



Friden's Multi-Sealer is an all-electric, high-speed machine designed to help meet outgoing mail schedules, payrolls, statements, and invoice mailings.

nature. Thus the complete letter can be prepared and addressed in one run through the machine. Some machines integrate accounting functions into the addressing process. Their ability to punch and imprint cards, accumulate totals, and perform numbering and sorting operations outdoes human efficiency in both speed and accuracy.

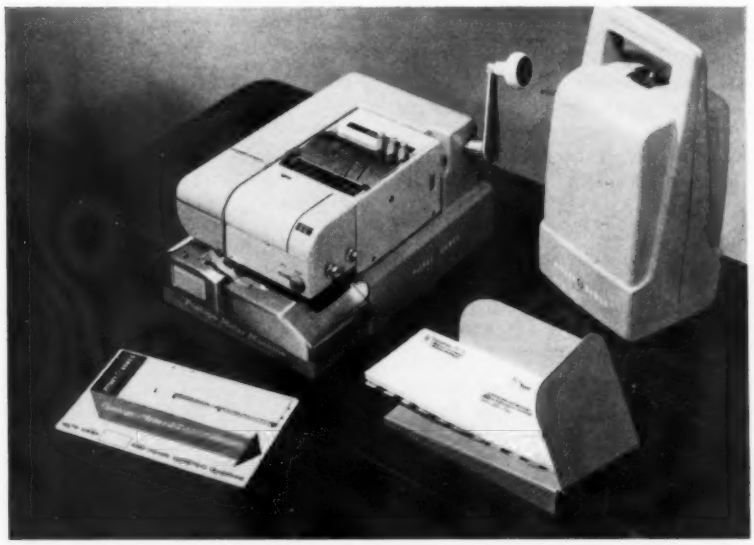
There are basic manual devices employed for the addressing process: Hand stamps used for addressing cartons and packages are a big help in the mailroom; so are hand-held addressing devices which contain spirit master rolls holding a list of names and addresses. The variety of addressing equipment is, obviously, extensive, and it vacillates in degree from highly complex machinery very elementary manual devices.

Collators might be considered the big brothers of addressing machines. Any of the usual sibling rivalry is, however, remarkably absent in the family of mailroom equipment. Each part helps and depends upon the other for the entire sustenance of the mailroom process.

The most elementary type of collating apparatus is a rack in which stacks of pages may be placed in sequence so that they may be gathered and arranged into individual sets. More advanced models employ bins. The pages are collated from the bins (one page from each bin) to make complete sets. In situations where a feeding mechanism is provided from each bin, a basic mechanical collation can exist. This is accomplished through the use of an arm which moves in and out of each bin taking the top sheet from the stack in order that it may be placed in proper sequence with sheets from the other bins. The series of arms so used are operated mechanically so that they are coordinated and may be easily operated. This type of collator may use foot control, manual power, or operate electrically.

In other collators, the stacks are so arranged that as the top sheets are taken away, they are gathered mechanically, as by riding on a moving belt. This technique permits many kinds of arrangements. In some cases, for example, the stacks are placed vertically while others are set in a horizontal sequence. Some collators carry the stacks in pockets which are mounted to rotate either vertically or horizontally.

While friction feeds are included in a great many collating machines, there are others which depend upon a suction-type, or vacuum feed. The more expensive machines offer a variety of safety devices to prevent misfeeding. Some measure the thickness of pages gathered from each stack, and, should double loading occur, the machine stops and a warning signal is given. Others are equipped with photoelectric cells scanning each station in order to stop the machine should a blank page appear in a stack. A wide variety of accessories is offered with



Model 5500 postage meter mailing machine by Pitney-Bowes seals, stamps, stacks in one operation. It prints postage from one-half cent to $1.09½ in a single meter stamp.

the more complex machines. Among these are counting, folding, stitching, stapling, and offset stacking facilities.

The Rotomatic Collator recently introduced by Thomas Collator Industries, Inc. is said to collate in any sheet combination from sets of 50 sheets down to sets of two sheets. Several separate collating jobs can be run at the same time. The machine's versatility is controlled by a push button programmer. By presetting the color-coded push buttons, stations pick up or skip as desired. The entire machine can be cleared by simply pushing two buttons. Depending on the speed of operation desired, the Rotomatic will automatically collate, count, stagger, or stitch from 15,000 to 25,000 sheets per hour.

Every sheet collated is precisely measured to assure that there are no misses, and that only one sheet passes through at a time. If more than one sheet should go by, or if a sheet is skipped, the machine stops instantly, a warning light goes on indicating the type of error, and a pointer shows where the miss or double occurred.

Postage Metering Machines

Postage metering equipment prints postage directly onto envelopes or onto postage labels or strips which are to be affixed to mailing pieces. Because the postage so printed is equivalent in amount to U. S. Government stamps of the same value, its use is controlled by strict government regulation.

The total postage for a unit is purchased in advance at the post office, and the amount paid for is set into a locked meter located somewhere in the machine. As postage is printed, its value is subtracted from the amount in the meter. The meters in all but the smallest machines are made detachable for convenience in taking them to the post office. Besides printing the postage, such machines also print a dated postmark and, if desired, some form of postmark advertising.

The most feasible of these machines for small office usage are those which are operated by hand. Larger models may be stocked with automatic loading devices. Postage metering facilities may be incorporated into machines which fold, gather, inset, seal, and stack mail all in one operation.

Stamp Affixing Machines

Most stamp affixing machines are designed to apply ordinary postage stamps directly to mailing pieces. In those companies which have no postage metering machines, this equipment is a blessing. Accessory facilities for affixing stamps are often discovered in large labeling machines and other members of the "family of mailroom."

Postal Scales

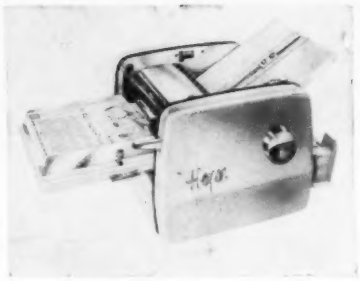
Postal scales differ from each other in both size and quality. Models range from small letter scales to scales designed to weigh parcel post packages. If scales do not have good quality workmanship, they may be inaccurate and will create a problem whichever way the error occurs: A reading which is inordinately high results in unnecessary postage expenditure. A reading which is too low will undoubtedly result in one of those annoying postage-due letters that is apt to make the recipient unhappy and doubtful about the sender's mailroom techniques.

Scales vary also in their weighing methods. Some employ springs, while gravity scales use a system of balances. Indicators differ in arrangement, information, and legibility. One feature designed to guard against misreading the scale is the so-called "gunsight" indicator, by which only the pertinent portion of the indicator scale is exposed to view at one time.

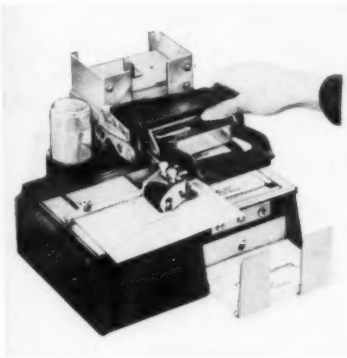
Sorting Devices

A common type of mail sorting device is a large case or table equipped with bins or racks for different classes of addressees. The equipment is often large and may be custom built.

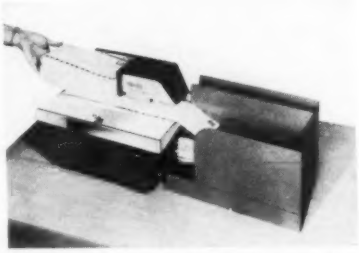
There also exist very simple sorting devices called desk-top racks consisting of flat boards with hinged dividers for handling small volumes of material. This type of equipment is often originally designed for use in accounting departments rather than the mailroom, and much of it is made in sizes for checks and other material not of letter size. However, since some of it has mailroom applications, it is listed here in cases where manufacturers state that their sorters are so used.



New folding machine by Heyer, Inc.



Master Addresser's new Model 99.



Martin Yale's "Premier" Auto-Opener.

Addressing machine by Nettle Mfg. Co.

Numbering machines, time recorders and stamps, and check devices are found in every office, regardless of its size, and, although they may be used for a variety of purposes, they are all linked together through the fact that they all have printing mechanisms.

It has been suggested that these comparatively simple devices could logically be included in the wide range of office machinery which has been used to further the trend of simplifying and integrating work procedure. During recent years much work has been done in this area so that certain models of the equipment on the market today, in combination with other units, do indeed fall into the category of integrated data processing equipment.

One example of this is an automatic payroll auditing system which consists of a special time clock that punches a series of time-identification holes in each employee's time card plus an "auditor" that automatically audits the card and prints the time of a full pay period on it. The time recorder not only prints the time, but also punches a set of two time-identification holes on the outer edge to denote each "in" and "out" the employee makes. When the cards are sent through the auditing unit at the end of the pay period, they are scanned by sensitive photoelectric cells. The cards that show a full pay period of regular work are thus stamped, while irregular cards are sorted and ejected into another tray. This system can be integrated with data processing systems by equipping the auditing unit with an optional automatic key punch for tabulating machines. It can also be used with conventional systems. In either case, it does provide a high degree of mechanization and speed for payroll auditing, as the "auditor" has a speed of 1,800 time cards per hour.

An electric time stamp that punches the time information on tabulating cards is another machine on the market today which is even more directly connected with data processing units. After the cards are punched they may be processed through any of the firm's data processing machines.

There are also automatic electric printing heads used for signing,

Won't accept "Postage Dues"

That's policy in many companies today. So the mail goes back to the sender, who must pay the postage due. Plus the postage for remailing. Plus the delay in delivery. And plus perhaps the poor impression "Postage Due" leaves with the addressee. Need a better reason for an honest accurate mailing scale, one that won't underweigh?

If your old scale overweighs, *then you're wasting postage. And a few overpayments of four cents each day uses up a lot of cash in a year.*

Why not check your old scale now? And then look at Pitney-Bowes precision mailing scales?

Pitney-Bowes mailing scales have an automatic precision mechanism that doesn't weaken or grow stiff, holds its accuracy year after year. The chart is eye high. The markings which include *recently increased parcel post rates*, are large and legible.

The hairline indicator registers instantly, shows the exact postage required. Mailing is easier and faster. And the scale soon pays for itself in postage saved, and embarrassing "Postage Dues" are avoided.

There are seven PB models; including an international postage scale for foreign mail; one for parcel post, with 70 lb. capacity; and an accurate little beam scale for the small office. Call any Pitney-Bowes office for the scale you need. Or send coupon for free illustrated booklet.

FREE: *Handy desk or wall chart of Postal Rates, including recently increased parcel post rates.*

Pitney-Bowes
Mailing Scales

Originator of the postage meter... 139 offices in U.S. and Canada

PITNEY-BOWES, INC.
2984 Walnut Street
Stamford, Conn.

Send free booklet ☐ *rate chart* ☐

Name _____

Address _____

endorsing, or cancelling checks, which may be used with the firm's mailing machines so that in addition to accomplishing their regular functions, the combined units will also insert, seal, and count paycheck envelopes.

Although numbering machines, time recorders and stamps, and check devices all serve different functions, they are designed with the characteristics of flexibility and versatility, so that certain models will perform all operations, while even the simplest of them may perform two jobs. A perforating numbering machine, for instance, can also be used as a check canceller.

Numbering machines have proved their value in all departments of a company. Aside from their use in a mailroom, they are used for stamping invoices, receipts, and a great many other documents. Another application of these machines is that of handling installment loan payments. This is especially true of numbering units which perforate, since the stamping of a page in a coupon book at the time of payment eliminates the need for further receipts.

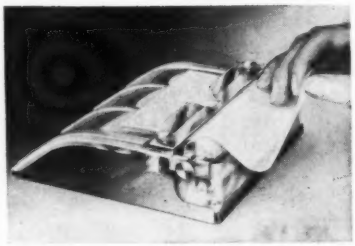
A variety of numbering machines is available on the market. They may be operated electrically, manually, or by foot pedal. Various type faces are available and the machines offer a wide range of sizes. There is also variety in the number of digits that can be printed at one time.

Special symbols are also offered with some of the machines as are certain words such as PAID, REC'D, and COD, to further aid in the classification and sorting of documents. Some of these units feature interchangeability of several plates so that one machine can be used for many different numbering jobs. There are a number of methods of numbering available, such as consecutive, repeat, skip, duplicate, triplicate, quadruplicate, and up to 12 movements on some models. Various means of manipulating the desired sequence of movements are offered.

Time recorders and stamps not only provide the payroll department with accurate records: they

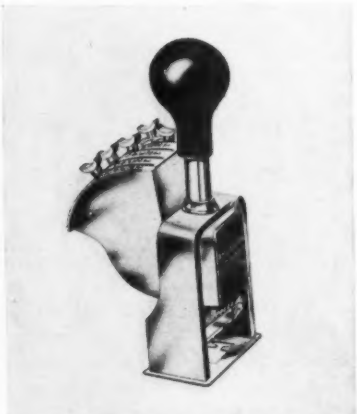
Cincinnati Time Recorder's "Paymaster."

Martin Yale's Premier Auto-Folder.



Moistener from Ameurope, Inc.

New features announced for Scriptomatic Model 10 Addressing Machine at recent national sales meeting in Philadelphia include new bulk feeder and conveyor stacker.



Recent numbering machine model from American Numbering Machine Company.

Four factors govern selection of time clock

are also invaluable in work control since they can record the time of receipt of mail and other papers, and thus help insure efficient processing. Models which can record elapsed time are also of immense value in establishing operator production and work volume standards for an office, since they can furnish daily time and quantity records by job and individual. Some of the "elapsed" time recorders will compute the time automatically and deduct non-working time.

Time recorders and stamps also vary greatly in their features. The wide range of models available is often confusing to a firm that has to decide which model will be best for its operations. It has been suggested that the four major factors which should govern the selection of a time clock are: the number of employees, the payroll period, the usage of such a unit (payroll, job cost, or combination), and the layout of the factory or office. Some authorities recommend that a time clock be used for each 100 employees, while others feel that 50 should be the maximum number. Obviously, the time clock must be compatible with the payroll period and the card used to record weekly, bi-weekly, semi-monthly, or monthly pay periods. The use of the machine is closely related to its position in the office or factory. Clocks may be mounted on a wall, or placed on a stand or table, in locations that offer the greatest accessibility and efficiency.

The units may print up-the-card, down-the-card, across-the-card and be powered by several different means. Automatic features and safety devices prevent double registration. They can spotlight irregular times by use of a second color or out-of-line recording. They can also be used with microfilm, print the time in combination of units such as hours, minutes, seconds, hundreths of hours or continental units, perforate, and print words or legends.

Some can be joined to bell-ringing or buzzer devices to sound the beginning and end of work periods. Special units are also available for specialized work such as the remote-controlled units used in fire-alarm systems wherein the time and date is printed on the ticket tape, or units for the stock exchange where the time is printed in tenths of minutes. Other units, equipped with batteries, are designed for use in field work and may be mounted on trucks or utilized for various applications away from the office.

Check devices may be used for a variety of purposes. There are models which not only cancel checks, but also invoices, notes, and passbooks. These units may also be used to validate purchase orders, to receipt insurance premiums, bills of lading, freight waybills, to mark coupon payment books for banks and loan companies, and to code various materials such as packaged food and drugs. Other machines

"I hate to admit it . . .

but since our new Thomas, collating is almost fun."

Next to a run in my new nylons . . . nothing annoyed me more than getting stuck with the dreary job of walking around a table gathering duplicated pages into sets.

With our new Thomas Collator—what a difference! In a matter of minutes, I can do what used to take me hours . . . faster, easier and without even moving from my chair.

If the girls in your office suffer from collating blues, why not write the people at Thomas for complete information. If you're like my boss and me . . . you'll be glad you did.

Thomas Collators Inc.
100 Church St., Dept. E, N.Y., N.Y.

Use Readers' Inquiry Coupon on Page 80

"When you put in the Payroll Savings Plan... How did it affect company stock purchases by your employees?"

"Not a bit, Al! You see, quite a number of our people had never made any investment of any kind through regular deductions. When we put in the Payroll Savings Plan for U.S. Savings Bonds we gave many of them a brand new idea. Automatic saving!

"Our State Savings Bonds Director did a grand job of cooperating with us. He helped us organize a company-wide campaign that reached every man and woman on our payroll. It was explained to each employee—*personally*—that with just one signature on a card he could arrange to buy the new 3¾% Savings Bonds, *regularly*. We got a splendid response, and we found that our Company stock purchases increased, too!"

Leading American companies in every one of our 50 states find that substantial employee participation in the Payroll Savings Plan is a sound builder of esprit de corps. People like to feel that they *belong*—to their company group and to the group of millions of patriotic Americans who are contributing to our Nation's Peace Power. Contact your State Savings Bonds Director for prompt, understanding help in spreading Payroll Savings information, person-to-person.

NOW! U. S. SAVINGS BONDS EARN 3¾%

Office Management
and AMERICAN BUSINESS

THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR ABOVE.

are used as check endorsers, check signers, check writers, and check protectors. Some models are convertible so that they may be used for several of these functions. Thus many models of signers can double as endorsers.

Fraud protection is offered by the check protector units in several ways. Some of these methods include special straight- or wavy-lined backgrounds behind the signature, maceration (perforating numbers as they are printed), serration (notched edges), multi-colored imprint of signatures, or the use of special powder to detect erasures. Some of the check devices will sign vouchers, checks in strips, continuous forms and letters as well as endorse checks. Their ability to print identical mechanical signatures at all times is a great aid to busy executives who are thus freed from a routine but vital detail.

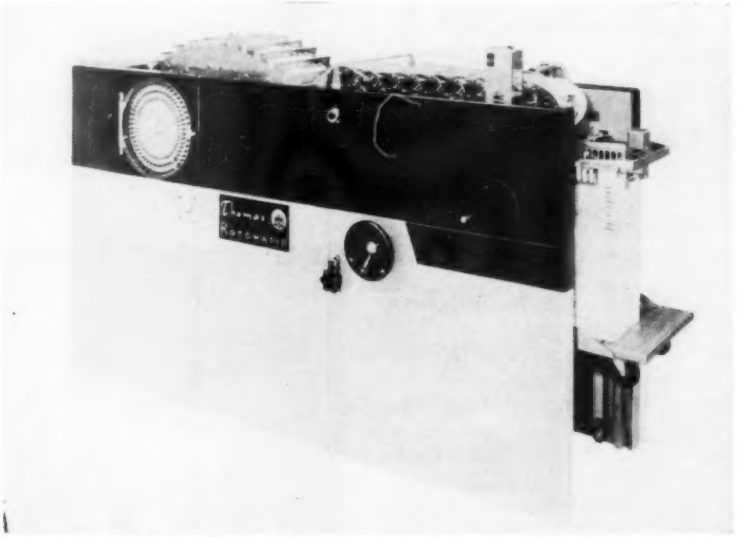
Other features of some of these machines include selective positioning of endorsement to prevent obliteration of prior endorsements, use for straight endorsing and cancelling in conjunction with adding or posting machines or microfilming units, stacking of checks after imprinting in original sequence, and variable speed control.

Addressing Machines

Addressograph-Multigraph Corp., 1200 Babbitt Rd., Cleveland 17.
Elliott Addressing Machine Co., 143 Albany St., Cambridge, Mass.
Heyer Corp., 1850 S. Kostner Ave., Chicago 23.
Multistamp Co., 527-29 West 21st, Norfolk 10, Va.
Master Addresser Co., 6500 W. Lake St., Minneapolis 26.
Nettle Manufacturing Co., 27 Huntington Ave., Boston 16.
Rex-Rotary Distributing Corp., 387 Park Ave. South, New York 16.
S & M Distributing Co., 3875 Garland St., Wheat Ridge, Colo.
Scriptomatic, Inc., 1105 Vine St., Philadelphia 7.
Weber Marking Systems, Inc., Weber Industrial Park, Mount Prospect, Ill.
Chauncey Wing's Sons, 78 Pierce St., Greenfield, Mass.

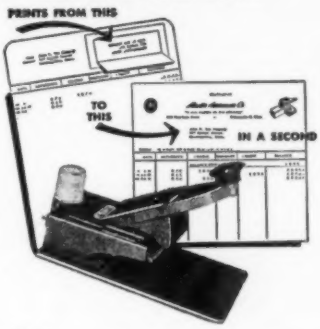
Collators

Addressograph-Multigraph Corp., 1200 Babbitt Rd., Cleveland 17.
Collamatic Corp., Wayne, N. J.
Diddle-Glaser, Inc., 50 Hi-Way & West 12th St., Emporia, Kansas.
Farrington Mfg. Co., 77 A St., Needham Heights, Mass.
General Photo Products Co., Inc., P.O. Box 23, Chatham, N. J.



Thomas Collator's 50-station, fully automatic collator can collate in any sheet combination from sets of 50 sheets to sets of two sheets. Machine is controlled by a push-button programmer, which may be pre-set to pick up or skip in desired sequence.

NOW YOU CAN ADDRESS MONTHLY STATEMENTS IN 1/3 THE TIME



attach a
PRESS-ON MASTER PATCH
to your ledger cards

SAVES TIME! Reduces statement addressing in the average office up to 66%.
PREVENTS ERRORS! Eliminates wrong addresses, misspelling, etc.
ENABLES YOUR LEDGER CARDS TO WRITE! In addition to heading statements and collection notices you can also address direct mail, service follow-ups, shipping labels, bills of lading and other office forms . . . all from your ledger card file.

● Just type the name and address ONCE on the PRESS-ON MASTER PATCH. They're easily prepared in an ordinary typewriter . . . no special equipment required.

Print With The Model 60 Master Addresser | **Machine Complete with Supplies For 500 Accounts $70.00 Plus Fed. Exc. Tax**

Master Addresser Company
6500-OE West Lake St., Minneapolis 26, Minn.

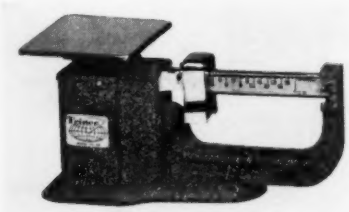
AMERICA'S FINEST, SAFEST
MAIL BAGS
ARE MADE BY CAN·PRO

CANVAS AND LEATHER OR ALL LEATHER
MOLDED RUBBER BOTTOMS
SAMPLES SENT "ON APPROVAL"

Top quality Mail Bags in sizes and at prices to meet every office need! Used by nationally known organizations coast to coast. Write for literature, prices today!

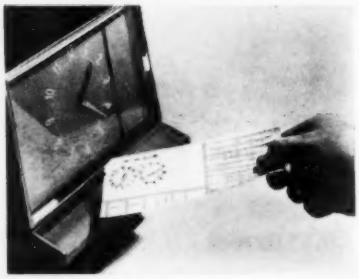
CAN·PRO Corporation
Another Subsidiary of J. M. Nash Co., Inc.
31 E. McWilliams St., Fond du Lac, Wis.

Use Readers' Inquiry Coupon on Page 80

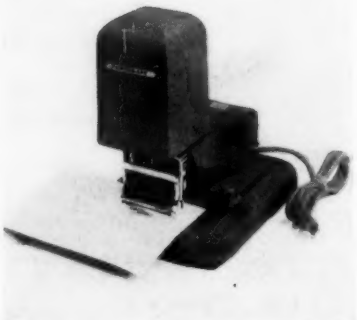


Triner Scale and Mfg. Co's Model No. 88

Stampton Manufacturing Company's "Stamp-O-Sealer," which stamps and seals.



New elapsed time computer, "Calculagraph", Calculagraph Co., Harrisburg, Pa.



Pryor Marking Products' "Powermark III", automatic stamping machine.

Macey Co., 1385 Enterprise Ave., Cleveland 35.
J. Curry Mendes Corp., 41 Merrimac St., New Bedford, Mass.
Pitney-Bowes, Inc., Walnut & Pacific Sts., Stamford, Conn.
Thomas Collators, Inc., 100 Church St., New York 7.
Wadsworth Mfg. Co., P.O. Box 125, Wadsworth, Ohio.

Opening and Sealing Machines

Better Packages, Inc., 252 Canal St., Shelton, Conn.
Friden, Inc., 2350 Washington Ave., San Leandro, Calif.
Derby Sealers, Inc., 100 Seymour Ave., Derby, Conn.
Glue-Fast Equipment Co., Inc., 11 White St., New York 13.
Lansdale Products Corp., Box 568, Lansdale, Penn.
Martin Yale, Inc., 2100 W. Fulton St., Chicago 12.
Office Accessories Corp., 660 S. Fair Oaks Ave., Pasadena 2, Calif.
Pitney-Bowes, Inc., Walnut & Pacific Sts., Stamford, Conn.
Pres-to-Line Corp. of America, 2339 Cotner Ave., Los Angeles 64.
Standard Duplicating Machines Corp., 1935 Parkway, Everett, Mass.

Folding and Inserting Machines

Bell & Howell Phillipsburg Co., 11 West 42nd St., New York 36.
Davidson Corp., 29 Ryerson St., Brooklyn 5.
A. B. Dick Co., 5700 West Touhy Ave., Chicago 31.
Lansdale Products Corp., Box 568, Lansdale, Penn.
Martin-Yale Inc., 2100 W. Fulton St., Chicago 12.
Pitney-Bowes, Inc., Walnut and Pacific Sts., Stamford, Conn.
Print-O-Matic Co., Inc., 724 W. Washington Blvd., Chicago 6.

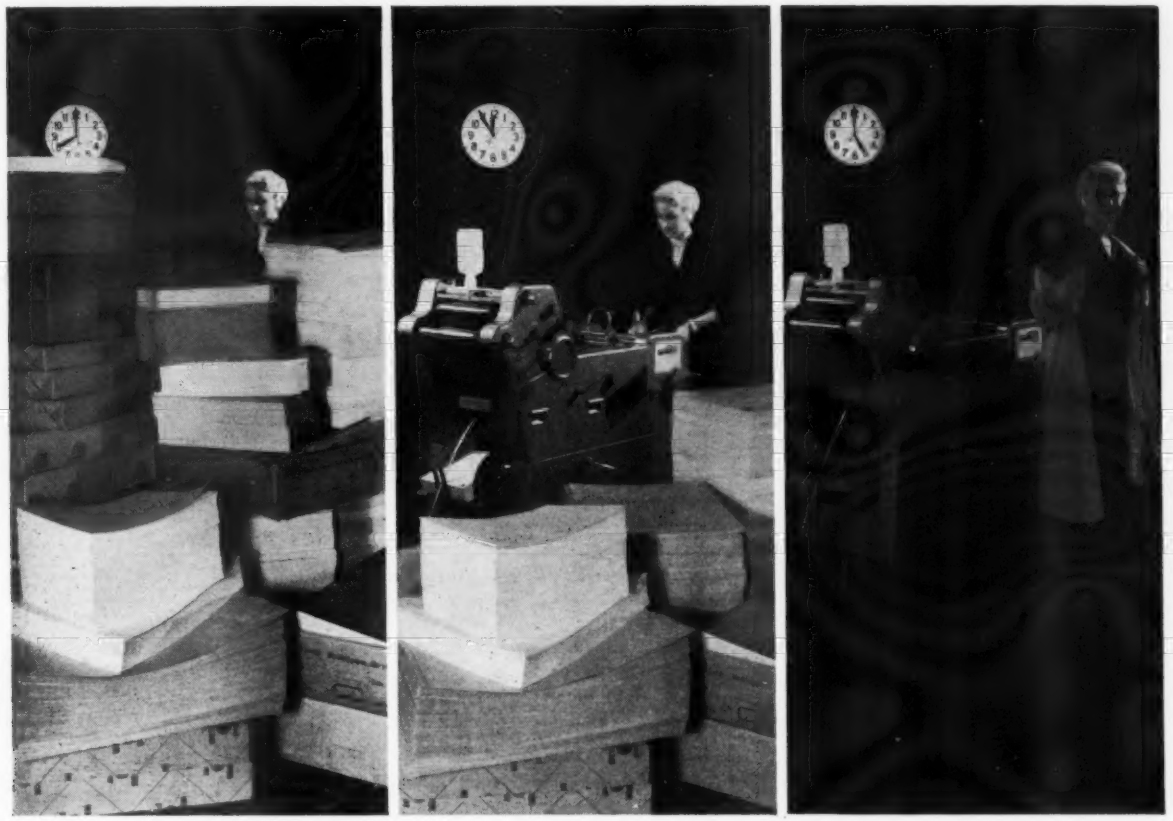
Postal Scales

B-T Co., Inc., 121 N. Broadway, Milwaukee 2.
Borg-Erickson Corp., 1133 N. Kilbourn Ave., Chicago 5.
Detecto Scales, Inc., 540 Park Ave., Brooklyn 5.
Friden, Inc., 2350 Washington Ave., San Leandro, Calif.
Hamilton Specialties, Inc., 148 Old Colony Ave., Wollaston 70, Mass.
Hanson Scale Co., 1777 Shermer Rd., Northbrook, Ill.
Pitney-Bowes, Inc., Walnut and Pacific Sts., Stamford, Conn.
Rudson-Wood Inc., 15 West 44th St., New York 36.

Automatic numbering machine from Bates Manufacturing Co., New York City

Model ETC Automatic Time Stamp by Ajax Business Machines, Inc., Westbury, N. Y.

The B-1150 Statement Addressor by Todd Company Division of Burroughs Corp.



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Triner Scale and Manufacturing Co., 2714 West 21st St., Chicago 8.

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Amberg File & Index Co., Kankakee, Ill.
Associated Industrial Designers, P. O. Box 39652, Los Angeles 39, Calif.
Friden, Inc., 2350 Washington Ave., San Leandro, Calif.
General Fireproofing Co., 413 Dennick Ave., Youngstown 1, Ohio.
Kehlhass Co., 8012 S. Chicago Ave., Chicago 17.
LeFebure Corp., 716 Oakland Rd., N. E., Cedar Rapids, Iowa.
Martin Yale, Inc., 2100 W. Fulton St., Chicago 12.
Pitney-Bowes, Inc., Walnut and Pacific Sts., Stamford, Conn.
Recordplate Co., 130 North Fair Oaks Ave., Pasadena, Calif.
Sorter-Graf Co., 4044 W. Jefferson Ave., Detroit 9.
Speedo-Sort Co., 4016 N. Harding Ave., Chicago 39.
Universal Business Machines, Inc., Columbia, S. C.

Mailroom accessories

Better Packages, Inc., Shelton, Conn.
Can-Pro Corp., 19 E. McWilliams St., Fond Du Lac, Wisc.
Cel-U-Dex Corp., P. O. Box 1127, New Windsor, Newburgh, N. Y.
W. A. Charnstrom Co., 422 S. 7th St., Minneapolis 15.
Chesley Industries, Inc., 24777 Telegraph Rd., Detroit 41.
Cheshire, Inc., 1644 North Honore St., Chicago 22.
Equipto Division of Aurora Equipment Co., 422 Cleveland, Aurora, Ill.
Friden, Inc., 2350 Washington Ave., San Leandro, Calif.
Hartman Metal Fabricators, Inc., 133 Murray St., Rochester, N. Y.
Ideal Stencil Machine Co., Belleville, Ill.
Lee Products Co., 2736 Lyndale Ave. S., Minneapolis 8, Minn.
D. Mailer Co., 137 W. Tupper St., Buffalo, N. Y.
Marsh Stencil Machine Co., 82-C Marsh Bldg., Belleville, Ill.
Nashua Corp., 44 Franklin St., Nashua, N. H.
Pitney-Bowes, Inc., Walnut and Pacific Sts., Stamford, Conn.
Stromberg Time Corp., Subsidiary of General Time Corp., Thomaston, Conn.

Numbering Machines

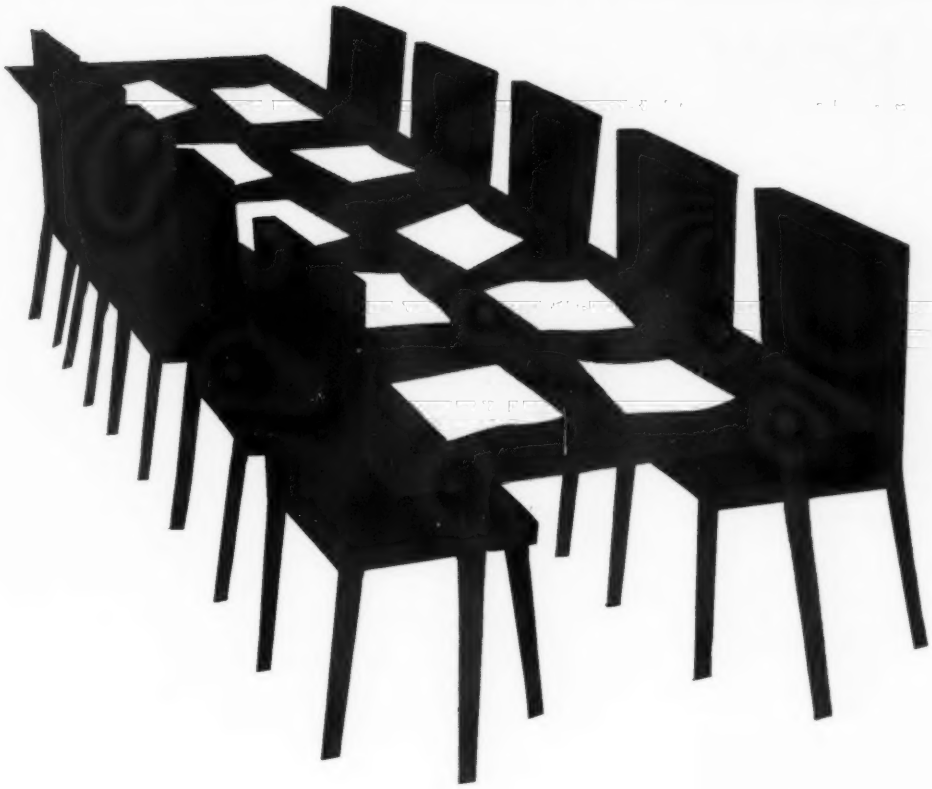
Acromark Co., 9-13 Merrell St., Elizabeth, N. J.
Ajax Business Machines, Inc., 112 Magnolia Ave., Westbury, L. I., N. Y.
American Bank Equipment Co., 5408-10 Jefferson St., Philadelphia 31.
American Numbering Machine Co., Inc., Atlantic and Shepherd Aves., Brooklyn 8, N. Y.
Ameurope, Inc., 535-543 Communipaw Ave., Jersey City 4, N. J.
Bankers & Merchants, Inc., 3229 N. Sheffield Ave., Chicago 13.
Bates Mfg. Co., Orange, N. J.
Cincinnati Time Recorder Co., 1733 Central Ave., Cincinnati 14.
Cummins-Chicago Corp., 4740 N. Ravenswood, Chicago 40.
Defiance Machine & Tool Co., 1920 S. Vandeventer Ave., St. Louis 10.
Force Western, Inc., 434 S. Wabash Ave., Chicago.
William A. Force & Co., Inc., 216 Nichols Ave., Brooklyn 8, N. Y.
Heller Roberts Mfg. Corp., 700 Jamaica Ave., Brooklyn 8, N. Y.
Douglas Homs Co., 326 Jackson St., San Francisco 11.
Lathem Time Recorder Co., 76 Third St., N. W., Atlanta 8, Ga.
National Rubber Stamp Works, 257 W. 38 St., New York 18.
Pitney-Bowes, Inc., Walnut & Pacific Sts., Stamford, Conn.
Pryor Marking Products, 434 S. Wabash Ave., Chicago.
Rapidprint Time Recorders, Inc., P. O. Box 580, Middlefield St., Middletown, Conn.
Simplex Time Recorder Co., Gardner, Mass.
Weber & Son, 1166 Broad St., Newark 5, N. J.

Time Recorders and Stamps

Ajax Business Machines, Inc., 112 Magnolia Ave., Westbury, L. I., N. Y.
Calculagraph Co., 306 Sussex St., Harrison, N. J.
Cincinnati Time Recorder Co., 1733 Central Ave., Cincinnati 14.
Cummins-Chicago Corp., 4740 N. Ravenswood, Chicago 40.
Dorson Corp., 605 W. Washington Blvd., Chicago 6.
International Business Machines Corp., Data Processing Div., 112 East Post Rd., White Plains, N.Y.
A. D. Joslin Mfg. Co., 123 Arthur St., Manistee, Mich.
Lathem Time Recorder Co., 76 Third St., N. W., Atlanta 8, Ga.
The Moses Electronics Co., 330 Locust St., Hartford 1, Conn.
Rapidprint Time Recorders, Inc., P. O. Box 580, Middlefield St., Middletown, Conn.
Simplex Time Recorder Co., Gardner, Mass.
Stromberg Time Corp., Main & Elm Sts., Thomaston, Conn.

Check Devices

Ajax Business Machines, Inc., 112 Magnolia Ave., Westbury, N. Y.
American Bank Equipment Co., 5408-10 Jefferson St., Philadelphia 31.
Applied Research Corp., 2609 W. 12th St., Box 1316, Erie, Pa.
Bankers & Merchants, Inc., 3229 N. Sheffield Ave., Chicago 13.
Checkwriter Co., Inc., 565 Broadway, New York 12.
Cincinnati Time Recorder Co., 1733 Central Ave., Cincinnati, 14.
Cummins-Chicago Corp., 4740 N. Ravenswood, Chicago 40.
Friden, Inc., 1 Leighton Ave., Rochester 2, N. Y.
Hall-Welter Co., Inc., 46 Mt. Hope Ave., Rochester 20, N. Y.
The Hedman Co., 1158 W. Armitage Ave., Chicago 14.
Heller Roberts Mfg. Corp., 700 Jamaica Ave., Brooklyn 8, N. Y.
Lansdale Products Corp., Box 568, Lansdale, Pa.
Metal Specialties Mfg. Co., 1975 N. Cornell Ave., Melrose Park, Ill.
Monroe Calculating Machine Co., Inc., 555 Mitchell St., Orange, N. J.
Pitney-Bowes, Inc., Walnut & Pacific Sts., Stamford, Conn.
Rapidprint Time Recorders, Inc., P. O. Box 580, Middlefield St., Middletown, Conn.
Safeguard Corp., Lansdale, Pa.
Simplex Time Recorder Co., Gardner, Mass.
Todd Co., Inc., P. O. Box 910, Rochester 3, N. Y.



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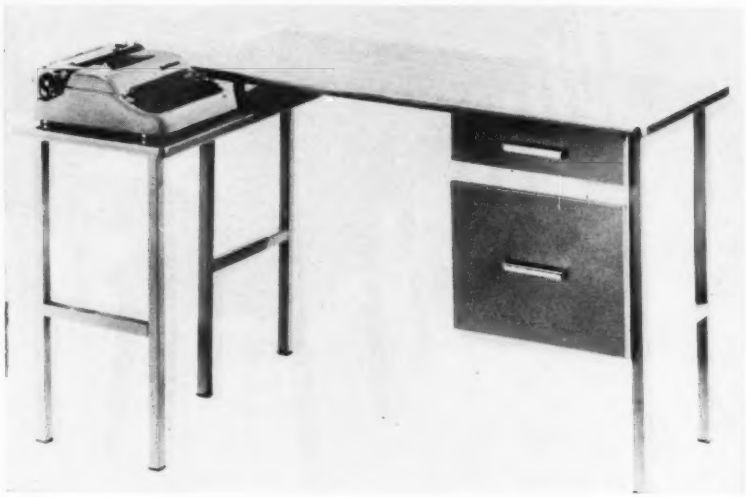
NEW CONCEPTS IN PRACTICAL OFFICE AUTOMATION

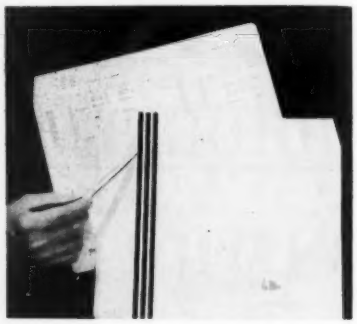
Use Readers' Inquiry Coupon on Page 80

NEW SYSTEMS AND EQUIPMENT

▶ Modular desk 1

A swing-out typewriter shelf with sturdy supporting pedestal makes this modular desk suitable for a variety of office uses. Desk top, available in walnut or teakwood grain, is made of laminated plastic and is said to be burn- and stain-resistant. The base and drawers of the unit are made of steel. Maso Products Div., Interstate Metal Products Co., Inc., 666 Lake Shore Drive, Chicago 11.





◀ Magnetic ledger sheets 2

A ledger sheet for use with accounting machines which operate on a magnetic recording and reading principal has magnetic recording tape laminated to reverse side. The recording tracks are strips of "Scotch" brand No. 301, oxide recording tape with a paper backing. Bann Inc., 620 Rossmor Bldg., St. Paul, Minn.

◀ Check writing machine 3

Automatic check writing and signing is accomplished at speeds up to 2,000 per hour with the T-142D "Control Center Unit." The machine is said to provide complete disbursement control: Checks are written, protected, listed, dated, counted, and delivered to a locked vault. A "total lock" in the machine prevents unauthorized persons from clearing it, although totals or subtotals may be taken at any time. Todd Company Div., Burroughs Corp., 1150 University Ave., Rochester, N. Y.

▲ Offset platemaker 4

The Pioneer III offset platemaker will take original copy up to 14 by 24 inches and plates 14 by 17 inches or longer. Designed primarily for the large offset press, the Pioneer III is a self-contained unit with vacuum printer and motor-driven processor. The unit is suitable for use with "Camera-Speed Magi-Plates" as well as size-to-size Magi-Plates by Gevaert. Photorapid Corp., Dept. OM-11, 236 Fifth Ave., New York 1.

▲ Closed-circuit TV **5**

Visual communication is accomplished without cameras in this closed circuit TV system said to produce a sharp, intense, high resolution-image without lighting equipment. Shown above transmitting airline data, the Scan-A-Graph can operate through as many as 500 locations simultaneously. Television Utilities Corp., Div. of Nord., 300 Denton Ave., New Hyde Park, N. Y.

▲ Photocopy machine **6**

The new "Vivicopy" photocopy machine operates on the diffusion transfer principal and uses ready-mixed developer in a disposable plastic cartridge. The unit automatically holds the copy material when the process is completed, as shown in photo. A line of bond-like sensitized paper is available for use with the machine. Vivicopy 12 (12-inch capacity), is priced at $269.50; models with nine and fourteen-inch capacities are also available. Smith-Corona Marchant Inc., Syracuse, N. Y.

▶ Magnetic tab card system **7**

Tabulating cards with a permanent magnetic action repel each other to expose top edges of at least 20 cards. Called Magne-Tab, the system is said to eliminate manual thumbing of card files, and will function normally when placed in automatic machinery. Magne-Tab Div., Business Efficiency Aids, Inc., 8114 N. Lawndale, Skokie, Ill.

◀ Contemporary arm chair **8**

Furniture with contemporary styling, the "Space Arm Chair" appears to be suspended from the actual chair framework. The frame is carved from solid black walnut, finished to a rich patina; chair may be upholstered in leather, fabric, plastic, or combinations. Carlton-Surrey, Inc., Grand Rapids, Mich.

▲ Three-legged chair **9**

Three-legged wing chair of contemporary design is upholstered in an imported textured fabric of wool and rayon. Tripod base is available in wood, brushed aluminum, or a combination of metal and wood. Jens Risom Design, Inc., 49 E. 53rd St., New York 22.

NEW SYSTEMS AND EQUIPMENT

◀ Tape-punch adder 10

A new 10-key adding machine, the Victor Premier, combines with the Data Punch to produce a punched data processing tape as a by-product of routine adding machine computations. A variable field control selector permits control over the 5-, 6-, 7-, or 8- channel columns to be punched. The operator can punch items only, totals only, or both items and totals. When desired, the tape punch can be turned off and the adding machine operated for general use. The Premier supplies a printed tape for immediate use during all processes. Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18.

◀ Book printer 11

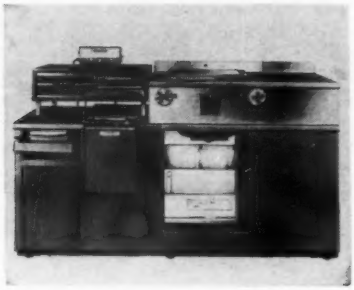
The Rex-A-Copy Book Printer is a flat bed photo-copy device which can develop a letter-size sheet in about eight seconds. A timing device that can be set from one-fifth second to 60 seconds actuates the light source. Based on the diffusion principal, the printer is available in two sizes: Model 9, copying surface of 9½ by 18½ inches; Model 14, 14 by 21-inch copying surface. Rex-Rotary Distributing Co., 387 Park Ave. South, New York 16.

◀ New carbon paper 12

A new carbon paper designed to withstand operation with electric typewriters is available in light to heavy weights, and in sharp, medium and strong finishes. Called Kee Lectric, the carbon paper may also be used in portable and standard typewriters. Kee Lox Mfg. Co., 100 Kee Lox St., Rochester, N. Y.

▲ Coin changer 13

The Standard Change Master is an automatic unit that dispenses change for three coins: 50-, 25-, and 10-cent pieces. It will accommodate up to $1,100 in change, and individual coin units may be interchanged if desired. The coin changer is constructed in a vault-like manner and has a double locking mechanism to prevent theft. Standard Change-Makers, Inc., 422 East New York St., Indianapolis 2.



◀ Vertical-type camera 14

A vertical-type camera, called the Goodkin Vertical 18-Inch Transfer-Mate is designed for use with Ektalith, Gevacopy, and other matrix-transfer processes. Shown mounted on the camera's recessed shelf is an Ektalith Loader-Processor Unit and the Ektalith Copy Unit; storage space for film and chemicals is directly beneath. Accessories for the unit are: Xerographic head, prismatic head, vacuum black. M. P. Goodkin Co., 112 Arlington St., Newark 2, N. J.

◀ Typist's copy holder 15

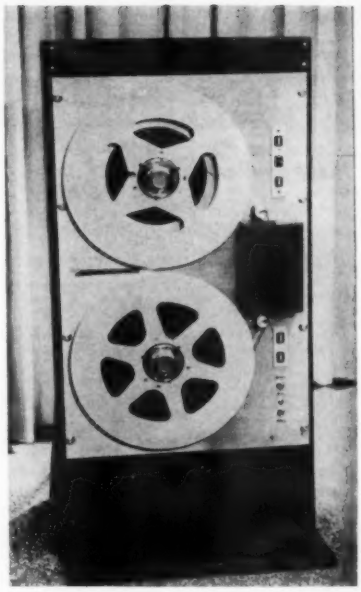
Typing copy and books can be firmly positioned with the Holzall book holder. The aluminum device is easily adjusted to four reading positions, and may also be used as a book end. Price, 59¢. The Holz-All Co., 609 St. Joseph St., Rapid City, S. D.

◀ Electric adding machine 16

A new electric adding machine, Model 88, features a listing and totaling capacity of 999,999.99, and is said to perform quietly. In addition, the unit has direct subtraction that prints in red, visible answer dials to show accumulated total, a motorized key for multiplication and repeat items, and a correction key that automatically restores the keyboard to normal. R. C. Allen Business Machines, Inc., Grand Rapids, Mich.

◀ Electric prompter 17

The TelExecutive portable electric prompting device is lighted from within and provides an hour or more of continuous script, depending on the size of type used. The script is prepared on continuous-form paper, and wound on an interchangeable spool; a hand control regulates the progress of the script. Price, $169.50. Telit Industries, Inc., 226 S. Wabash Ave., Chicago.



▲ Long-play tape machine 18

Model C-540 long-play tape machine, available in stereo or monaural, can play up to 16 hours of unduplicated music. The unit may be operated in either direction and features automatic reversing as well as operation unattended. The machine has 14-inch reels and two playback heads. American Concertone Div., American Electronics, Inc., 9449 W. Washington Boulevard, Culver City, Cal.

▲ Marking ink 19

An instant-drying marker called Town-Mark is said to be waterproof, rub-proof, and smear proof. The marker, a disposable container, is available in 14 assorted colors. Old Town Corp., 750 Pacific St., Brooklyn, N. Y.

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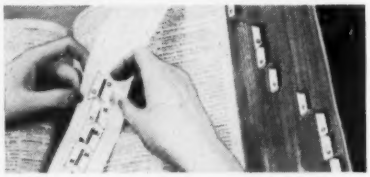

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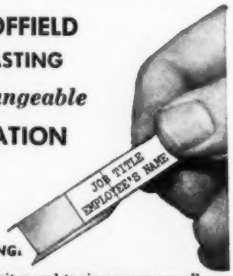

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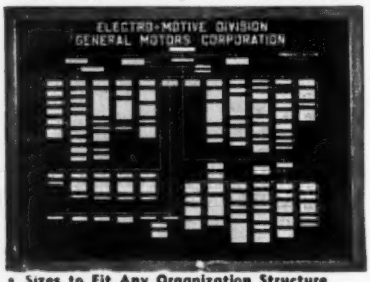

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Use Readers' Inquiry Coupon on Page 80

YOURS FOR THE ASKING

CATALOGS

Microfilming C1

Microfilm Products, Minnesota Mining and Manufacturing Co., 900 Bush Ave., St. Paul, Minn. An eight-page illustrated booklet describes on-the-premise microfilming, film processing, filing, retrieval, and reproduction of engineering drawings at International Business Machines Corp., Poughkeepsie, N. Y. J. M. Soman, photographic and reproduction services manager of IBM's product development lab outlines the procedure and discusses each step in detail.

Computer programming C2

Royal McBee Corp., Data Processing Div., Port Chester, N. Y. "Application Report #16" for the company's LGP-30 desk-size electronic computer discusses the solving of oil refinery design problems at J. F. Pritchard & Co., through LGP-30 application. The report discusses two novel programming techniques which make it possible for the computer to increase its normal 4,096-word memory size to approximately two and one-half times that capacity. Sample programs and computer outputs are amply illustrated.

Aluminum offset plates C3

The Gevaert Company of America, Inc., 321 W. 54th St., New York 19. How to make aluminum offset plates in a matter of few minutes is the subject of this 20-page, illustrated booklet. The company's Gevacopy Offset Rapid process is outlined along with equipment and materials required. The processing of the plate, the treatment of the plate on the press, and retouching and correcting the plate image, are also described.

Standard typewriter C4

Remington Rand Division of Sperry Rand Corp., 315 Park Ave. South, New York 10. The company's re-styled standard typewriter is the subject of full color, illustrated 8-page brochure recently published. Many features of the new machine are discussed in detail with illustrative drawings. Re-styling of the machine was accomplished with the aid of Cycolac, a highly durable, stain-resistant material which is said to assure less overall weight. A chart is included for those colors available with the standard machine.

Business forms press C5

American Type Founders Co., Inc., 200 Elmora Ave., Elizabeth, N. J. A four-page booklet contains descriptions and illustrations of the ATF rubber plate "Variable Size Business Forms Press," for the production of snap-out, continuous, and other business forms. Technical descriptions, illustrations of operating parts, and a schematic drawing of the press are included.

Legal files C6

Tab Products Co., 995 Market St., San Francisco 3. An illustrated, 16-page booklet entitled, "Modern Filing for Lawyers," discusses legal filing problems and gives general information on filing procedures applicable to a variety of offices. The company's filing products are depicted in regard to visibility and accessibility; numerical systems; terminal digit systems; alphabetic systems; alphanumerical systems; and color coding. File folders and guides are also discussed and amply illustrated.

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FOR SALE: AT REDUCED Price, like new set of four steel Acme card tray cabinets with matching base used one year for inventory control. Goodman Lumber Division, Attention: Purchasing Dept., Goodman, Wisconsin.

FOR SALE: NATIONAL CASH Register Accounting Machine Size 31-10-14-(24)4-26. Equipment in excellent condition. C. E. Duncan, Hagman's Inc., Pittsburg, Kansas.

SALE MODEL 305 ELECTRIC 2-in-1 Factory new Folding and Letter Opener Machine. Originally $369.50 now $159.00 Lansdale Products Corporation, Box 568, Lansdale, Pa.

FOR SALE. REMINGTON RAND Bookkeeping Machine Model 683 Carriage "C", 3 years old. Best offer. Mr. Cappelli, 2 W. 45th St., New York 36, N. Y.

FOR SALE: TWO MODEL 392 Diebold Motor driven Card files. 117,000 Card Capacity. Complete with trays. Will accept best offer. Eagle Pencil Company, Danbury, Connecticut.

FOR SALE: COMPLETE ADDRESSOGRAPH System; 1 Wheel Type Graphotype; 2 Addressographs, Model 2700; 1 Dupligraph, Model 5300E; 8 Cabinets, 133 trays; 12 Cabinets, 30 trays; 1 Saxmayer Tyer; New—45 M.E. Frames, 32 M.E. Plates; 45 M. Frame Cards; Used—130 M.E. Frames. Accept best offer, F.O.B. Trinity Missions, Box 30, Silver Springs, Md.

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YOURS FOR THE ASKING

BOOKLETS

Personnel policies **C7**

Written statements on personnel policy and procedures are as important for the small businessman as they are for the corporation, and toward the foundation of a fair and consistent written policy this booklet has been published. It incorporates the most modern personnel policies and may be used as a yardstick to measure existing practices as well as setting up new programs. "Guidebook To A Modern Personnel Program." The Mutual Life Insurance Company of New York, 1740 Broadway, New York 19.

Leasing questions **C8**

Questions most commonly asked about leasing are answered in a brochure by Burton T. Peake, president, Equitable Leasing Corp., Asheville, N. C. Here is a sampling of the questions answered: What is the difference between leasing and renting?; What is the usual or average cost of leasing, or is there such a thing? Equitable Leasing Corp., 246 Charlotte St., Asheville, N. C.

Computer jargon **C9**

"Do You Talk 'Computerese?' " is the searching title of a handy 22-page glossary of terms most commonly used in (and around) conversations involving computers. Designed for the layman, the glossary defines 82 elusive, confusing, and highly important terms used in computer instrumentation and technology. Minneapolis-Honeywell Regulator Co., Industrial Division, Philadelphia 44.

Stock Exchange facts **C10**

Did you know that more than half of the common stocks listed on the New York Stock Exchange have paid dividends every year for at least 20 years? This and other heartening data are contained in the *1960 Fact Book*, the fifth annual compilation of figures and facts on activities of the New York Stock Exchange. New York Stock Exchange Publications Div., 11 Wall St., New York 5.

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To acquaint the readers of this paper with the easy-to-follow rules for developing skill in remembering names, places, figures, dates, business transactions, or even passages of literary content, the publishers have printed full details of their interesting self-training method in a 24-page booklet, "Adventures in Memory," which will be mailed free to anyone who requests it. No obligation. Simply send your request to: Memory Studies, 835 Diversey Parkway, Dept. 427C, Chicago 14, Ill. A postcard will do.

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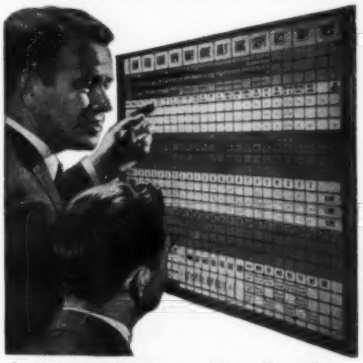

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GRAPHIC SYSTEMS

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Average clerical salary is $73 a week, NOMA survey reveals

THE AVERAGE weekly salary for clerical workers in the United States is $73, according to the Annual Clerical Salary Survey published July 1 by the National Office Management Association. This is a $3 increase over 1959 findings.

The survey contains salary and corollary data on 23 clerical jobs, 592,000 office employees from 9,100 companies in 136 cities throughout the United States and Canada.

The survey also reveals that the 40-hour basic work week is still the standard for the majority of companies reporting in the United States. Sixty-six per cent of the total companies indicate a 40-hour basic work week as compared to 68 per cent in 1959. Thirteen per cent of the offices are at work 37½ hours a week; 6 per cent, 35 hours; and 3 per cent show a basic work week of more than 40 hours.

Overtime after "eight hours in one day" is paid by 42 per cent of the offices responding; "after regular number of working hours," by 11 per cent. However, 36 per cent do not pay any overtime based on hours worked in one day.

Overtime payment for weekly hours worked is more important than daily overtime, since only 8 per cent do not pay any weekly overtime. Of the U.S. companies answering the survey, 71 per cent pay weekly overtime after 40 hours, but only 12 per cent pay overtime after their basic weekly hours if these are less than 40.

In the United States, six paid holidays per year is still most popular. However, it is slowly losing out as 2 per cent more firms than last year favor a more liberal holiday policy. In 1959, 32 per cent of the companies reported a six-day holiday plan. This year, 30 per cent of the total indicated six days as their policy. The granting of seven holidays remains at 28 per cent. However, eight or more holidays are paid for by 33 per cent, a 2 per cent increase over the 1959 study.

Unionization in offices reflects a slight increase this year in the areas with the highest office population. The highest incidence of unionization in the United States was in the Western states, which reported 10.5 per cent unionization, a decrease from last year's 11.3 per cent. The remaining areas reported as follows: West Central states, 8.7 per cent (8.5 per cent in 1959); Eastern states, 8.7 per cent (7.7 per cent in 1959); East Central states, 8.1 per cent (7.2 per cent in 1959); and Southern states, 5.1 per cent (5.8 per cent in 1959).

The ratio of non-office workers to all groups of office workers is 2.7 to 1, a decline from the 3.1:1 ratio recorded in 1959. By contrast, the 1948 ratio was 5.1:1.

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Editorial

EXPERIENCE—THE EASY WAY

THE simulation of scientific situations — such as a moon orbit—has for years been one of the important advantages offered by computers to scientists and engineers. Less well known, but rapidly coming into new prominence, are the capabilities of the computer in testing human decisions in a simulated business situation. The data processor then evaluates the human decisions in terms of their effect within the situation.

Such business "games," as is pointed out in this month's lead article, may become extremely important in management training in the coming decade since so many normal internal company routines are being automated that the ordinary "learning by experience" opportunities are apt to be sharply reduced.

Moreover, such business games can expose rising executives to a far greater variety of business situations in a relatively short period of time than would ever occur in actual practice. Thus, they can form an excellent training tool because they call for a series of meaningful decisions within a short period of time and offer almost immediate "feedback" of the consequences of each decision. The time lag between a decision and its consequences in actual life can often obscure the connection between the two.

And — finally — mistakes in a business game cost nothing.

The growing importance of simulation techniques is shown by the fact that the American Management Association, which was one of the pioneers in offering business games as part of its program, is now sponsoring a seminar at its Saranac Lake Academy for personnel from companies planning to use simulation techniques in their own in-company training programs.

And—perhaps, most important of all—this new and valuable training tool is not restricted to companies owning or having access to an electronic data processor. Many new decision-making games are being developed which imitate business situations; the outcome of the game is still determined by the decisions made by the respective players, but electronic units are not required.

Fast and effective, business games offer a broad new dimension in management training as well as an important added bonus—a clear and revealing picture of how differing individual executives behave and operate in critical situations.